KRAIS
Tube & Pipe Tools

Tube&Pipe
Профессиональные инструменты

КАТАЛОГ ПРОДУКЦИИ 2019

www.krais.com

KRAIS
Tube & Pipe Tools

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KRAIS Tube & Pipe Tools
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tel. +48 71 312 05 96, fax +48 71 387 03 32,
mail: export@krais.com
www.krais.com

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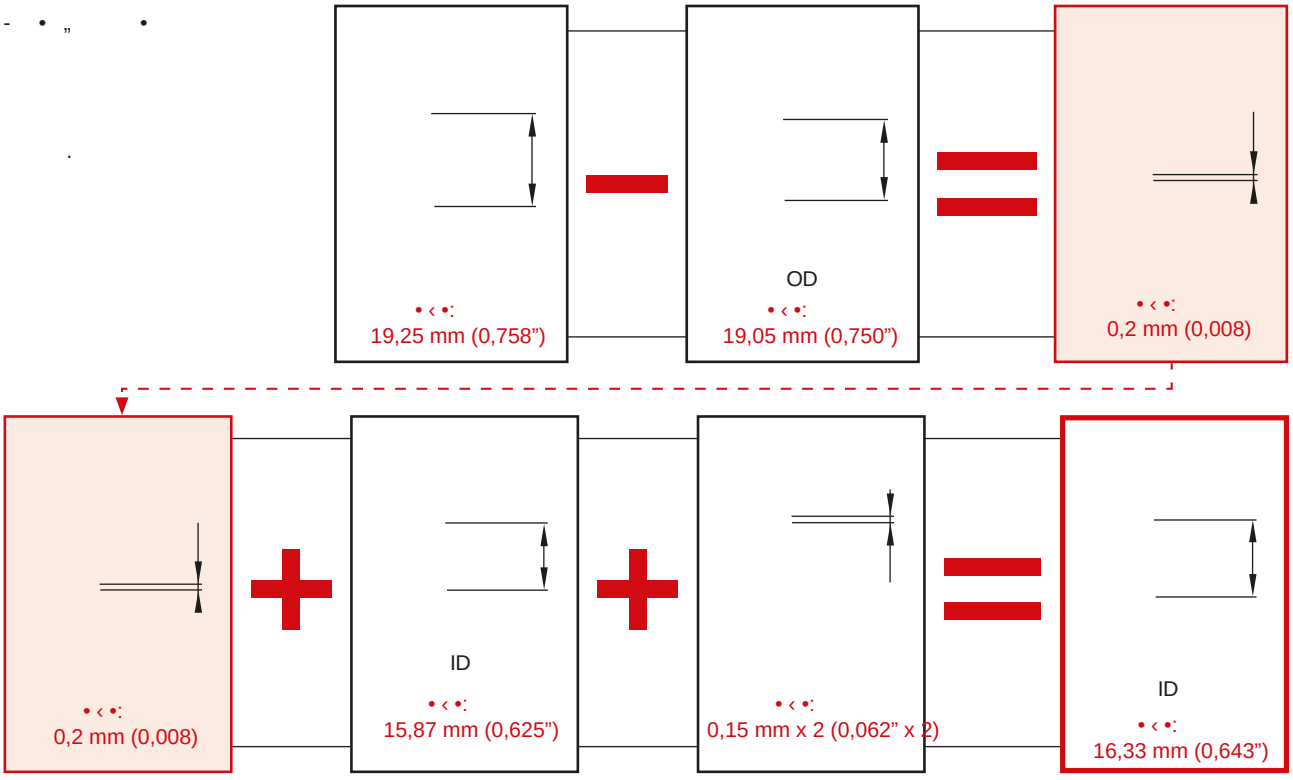

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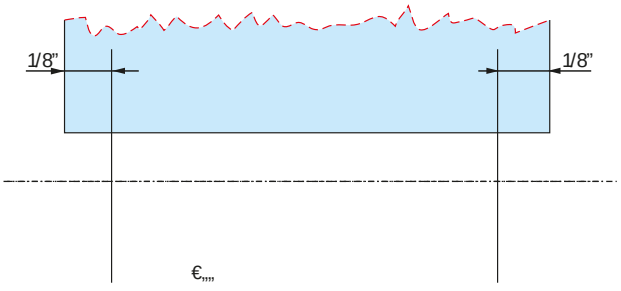

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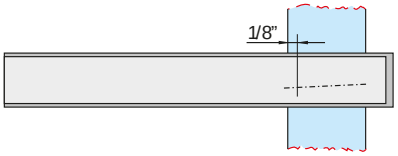

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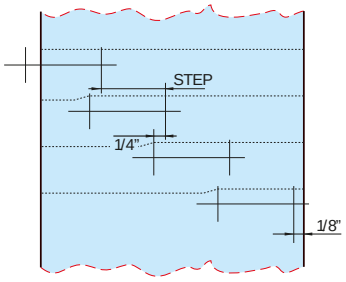

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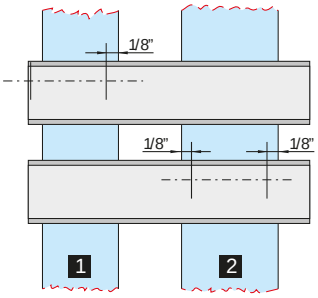

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		MIN		MAX							
INCH	MM	INCH	MM	INCH	MM		INCH	MM			
3/8	9,53	0,290	0,350	7,37	8,89	K200-95	4	101,6	SR-3/8	K200-95-ME	K200-95-BE
1/2	12,70	0,350	0,450	8,89	11,43	K200-127	4	101,6	SR-1/2	K200-127-ME	K200-127-BE
5/8	15,88	0,440	0,560	11,18	14,22	K200-158	4	101,6	SR-5/8	K200-158-ME	K200-158-BE
3/4	19,05	0,550	0,715	13,97	18,16	K200-190	8	203,2	SR-3/4	K200-190-ME	K200-190-BE
7/8	22,23	0,675	0,840	17,15	21,34	K200-222	8	203,2	SR-7/8	K2000-222-ME	K200-222-BE
1	25,40	0,800	0,965	20,32	24,51	K200-254	8	203,2	SR-1	K200-254-ME	K200-254-BE
1 1/4	31,75	0,950	1,170	24,13	29,72	K200-317	8	203,2	SR-1-1/4	K200-317-ME	K200-317-BE
1 3/8	34,93	1,085	1,295	27,56	32,89	K200-350	8	203,2	SR-1-3/8	K200-350-ME	K200-350-BE
1 1/2	38,10	1,240	1,450	31,50	36,83	K200-381	8	203,2	SR-1-1/2	K200-381-ME	K200-381-BE
1 3/4	44,45	1,476	1,685	37,49	42,80	K200-444	8	203,2	SR-1-3/4	K200-444-ME	K200-444-BE
2	50,80	1,700	1,910	43,18	48,51	K200-508	8	203,2	SR-2	K200-508-ME	K200-508-BE
2 1/4	57,15	1,948	2,16	49,479	54,86	K200-571	8	203,2	SR-1-1/4	K200-571-ME	K200-571-BE
2 1/2	63,50	2,200	2,41	55,880	61,21	K200-635	8	203,2	SR-2-1/2	K200-635-ME	K200-635-BE
3	76,20	2,660	2,87	67,564	72,90	K200-762	8	203,2	SR-3	K200-762-ME	K200-762-BE

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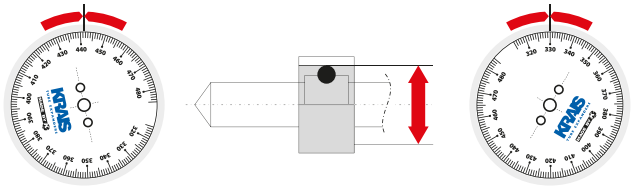

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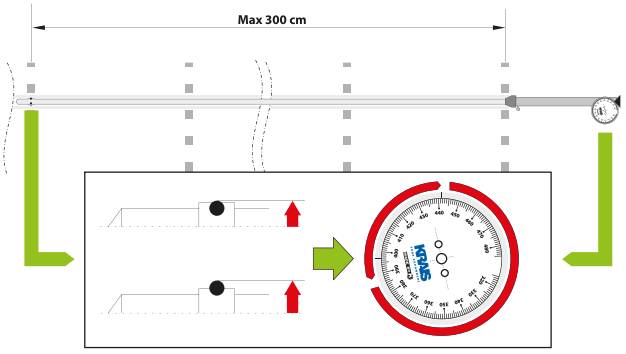

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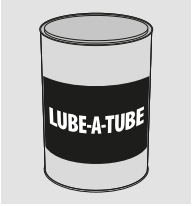

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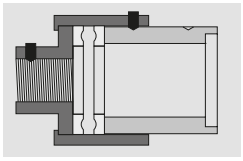

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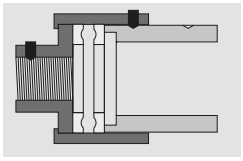

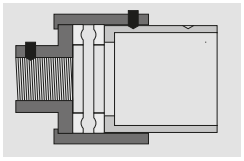

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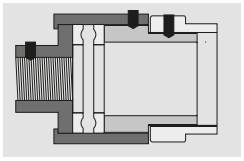

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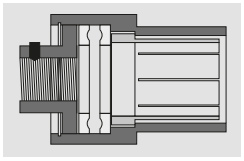

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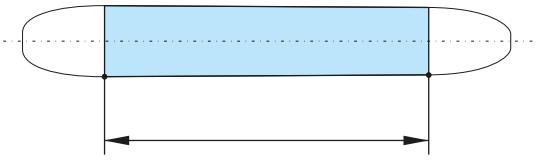

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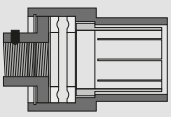
ID		T
3,86 - 8,41 mm	6,35 - 9,50 MM	6,3 - 31,7 MM
0,152” - 0,331”	1/4” - 3/8”	0,25” - 1,25”



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			ID				INCH		MM		1/4 3/4" 6.3 19 MM		3/4 1 1/4" 19 31.7 MM					* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
1/4	6,35	18	0,049	1,24	0,152	3,86	0,151	0,173	3,84	4,39	921	921	-	-	M-39	1/4”	6,3	K20-2500	TES3000 S6000
		19	0,042	1,07	0,166	4,22	0,165	0,185	4,19	4,70	922	923	-	-	M-39	1/4”	6,3		
		20	0,035	0,89	0,180	4,57	0,175	0,200	4,45	5,08	923	923	-	-	M-40	1/4”	6,3		
		21	0,072	1,83	0,186	4,72	0,180	0,207	4,57	5,26	924	924	-	-	M-40	1/4”	6,3		
		22	0,028	0,71	0,194	4,93	0,190	0,216	4,83	5,49	925	925	-	-	M-41	1/4”	6,3		
		23	0,025	0,64	0,200	5,08	0,195	0,222	4,95	5,64	926	923	-	-	M-41	1/4”	6,3		
		24	0,022	0,56	0,206	5,23	0,201	0,230	5,11	5,84	927	924	-	-	M-41	1/4”	6,3		
		28	0,014	0,35	0,222	5,6	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4”	6,3		
		29	0,013	0,33	0,224	5,7	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4”	6,3		
		30	0,012	0,30	0,226	5,7	0,222	0,238	5,6	6,0	928	903	-	-	928	1/4”	6,3		
3/8	9,5	14	0,83	2,10	0,209	5,3	0,201	0,232	5,1	5,8	927	924	-	-	M-41	1/4”	6,3	K20-1800	TES3000 S3000
		15	0,072	1,83	0,231	5,87	0,230	0,265	5,84	6,73	915	903	-	-	M-42	1/4”	6,3		
		16	0,065	1,65	0,245	6,22	0,240	0,275	6,10	6,99	916	916	916L	916L	M-36	1/4”	6,3		
		17	0,058	1,47	0,259	6,58	0,255	0,289	6,48	7,34	918	903	920	904	M-38	1/4”	6,3		
		18	0,049	1,24	0,277	7,04	0,272	0,307	6,91	7,80	901	903	902	904	M-30	1/4”	6,3		
		19	0,042	1,07	0,291	7,39	0,286	0,320	7,26	8,13	903	903	904	904	M-31	1/4”	6,3		
		20	0,035	0,89	0,305	7,75	0,300	0,334	7,62	8,48	905	907	906	908	M-32	1/4”	6,3		
		21	0,032	0,81	0,311	7,90	0,306	0,340	7,77	8,64	907	907	908	908	M-33	1/4”	6,3		
		22	0,028	0,71	0,319	8,10	0,314	0,349	7,98	8,86	909	909	910	910	M-34	1/4”	6,3		
		23	0,025	0,64	0,325	8,26	0,320	0,357	8,13	9,07	911	911	912	912	M-34	1/4”	6,3		
		24	0,022	0,56	0,331	8,41	0,319	0,357	8,10	9,07	911	911	912	912	M-34	1/4”	6,3		

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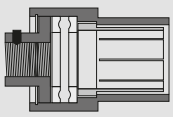
5,87 - 8,41 mm	9,5 MM	19,0 - 88,9 MM
0,231” - 0,331”	3/8”	0,75” - 3,50”



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ID							INCH		MM		1/4 3/4" 6.3 19 MM		3/4 1 1/4" 19 31.7 MM						
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM	.	.
3/8	9,5	15	0,072	1,83	0,231	5,87	0,230	0,265	5,84	6,73	1315	1315	1316	1316	M-86	1/4”	6,3	K20-1800	TES3000 S3000
		16	0,065	1,65	0,245	6,22	0,240	0,275	6,10	6,99	1319	1315	1319-L	916-L	M-86	1/4”	6,3		
		17	0,058	1,47	0,259	6,58	0,255	0,289	6,48	7,34	1317	903	1318	904	M-88	1/4”	6,3		
		18	0,049	1,24	0,277	7,04	0,272	0,307	6,91	7,80	1301	903	1302	904	M-80	1/4”	6,3		
		19	0,042	1,07	0,291	7,39	0,286	0,320	7,26	8,13	1303	903	1304	904	M-81	1/4”	6,3		
		20	0,035	0,89	0,305	7,75	0,300	0,334	7,62	8,48	1305	907	1306	908	M-82	1/4”	6,3		
		21	0,032	0,81	0,311	7,90	0,306	0,340	7,77	8,64	1307	907	1308	908	M-83	1/4”	6,3		
		22	0,028	0,71	0,319	8,10	0,314	0,349	7,98	8,86	1309	909	1310	910	M-84	1/4”	6,3		
		23	0,025	0,64	0,325	8,26	0,320	0,357	8,13	9,07	1311	911	1312	912	M-84	1/4”	6,3		
		24	0,022	0,56	0,331	8,41	0,319	0,357	8,10	9,07	1311	911	1312	912	M-84	1/4”	6,3		

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ID		T
8,48 - 36,32 mm	12,7 - 38,1 MM	12,7 - 57,1 MM
0,334” - 1,027”	1/2” – 1-1/2”	0,50” - 2,25”

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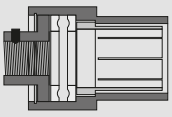

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ID							INCH		MM		1/2 12,7	1 1/2" 38,1 MM	1 1/4 31,7	2 1/4" 57,1 MM		INCH	MM	* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM													
1/2	12,7	14	0,083	2,11	0,334	8,48	0,324	0,374	8,23	9,50	797	797	-	-	797	3/8	9,5	K20-500	TES300 S1500 TESMini2 HT0
		15	0,072	1,83	0,356	9,04	0,348	0,398	8,84	10,11	799	R-1	-	-	799	3/8	9,5		
		16	0,065	1,65	0,370	9,40	0,36	0,410	9,14	10,41	801	R-1	-	-	M-1	3/8	9,5	K20-1800	
		17	0,058	1,47	0,384	9,75	0,374	0,424	9,50	10,77	803	R-2	-	-	M-1	3/8	9,5		
		18	0,049	1,24	0,402	10,21	0,392	0,447	9,96	11,35	805	R-3	-	-	M-2	3/8	9,5		
		20	0,035	0,89	0,430	10,92	0,406	0,461	10,31	11,71	805[S]	R-3	-	-	M-3	3/8	9,5		
5/8	15,8	12	0,109	2,77	0,407	10,34	0,392	0,447	9,96	11,35	805	R-3	-	-	M-2	3/8	9,5	K50-600	TES3000 G1450 TesMini2 ES2
		13	0,095	2,41	0,435	11,05	0,425	0,480	10,80	12,19	807	R-4	-	-	M-3	3/8	9,5		
		14	0,083	2,11	0,459	11,66	0,449	0,509	11,40	12,93	809	R-4	810	R-4-A	M-4	3/8	9,5		
		15	0,072	1,83	0,481	12,22	0,471	0,536	11,96	13,61	811	R-5	812	R-5A	M-5	3/8	9,5		
		16	0,065	1,65	0,495	12,57	0,485	0,550	12,32	13,97	813	R-6	814	R-6A	M-5	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	815	R-6	816	R-6A	M-6	3/8	9,5		
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	817	R-7	818	R-7-A	M-7	3/8	9,5		
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	819	R-7	820	R-7-A	M-6	3/8	9,5		
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5		
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5		
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	819[S]	R-7	820[S]	R-7-A	M-8	3/8	9,5		
3/4	19	10	0,134	3,40	0,482	12,24	0,471	0,536	11,96	13,61	811	R-5	812	R-5-A	M-5	3/8	9,5	K60-900	TES3000 + G1000 TESMini 2 +ES2
		11	0,120	3,05	0,510	12,95	0,499	0,564	12,67	14,33	815	R-6	816	R-6-A	M-6	3/8	9,5		
		12	0,109	2,77	0,532	13,51	0,522	0,582	13,26	14,78	819	R-7	820	R-7-A	M-6	3/8	9,5		
		13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	821	R-8	822	R-8-A	M-8	3/8	9,5	K50-400	TES3000 G1450
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	823	R-9	824	R-9-A	M-8	3/8	9,5		
		15	0,072	1,83	0,606	15,39	0,596	0,661	15,14	16,79	825	R-10	826	R-10-A	M-8	3/8	9,5	K50-600	TESMini2 ES2
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	827	R-10	828	R-10-A	M-9	3/8	9,5		
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5		
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		

					ID						1/2 1 1/2"		1 1/4 2 1/4"					*	*
							INCH		MM		12,7	38,1 MM	31,7	57,1 MM					
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
7/8	22,2	10	0,134	3,40	0,607	15,42	0,596	0,661	15,14	16,79	825	R-10	826	R-10-A	M-8	3/8	9,5	K50-400	TES3000 G1000 TESMini2 ES2
		11	0,120	3,05	0,635	16,13	0,619	0,699	15,72	17,75	829	R-11	830	R-11-A	M-9	3/8	9,5		
		12	0,109	2,77	0,657	16,69	0,642	0,722	16,31	18,34	831	R-12	832	R-12-A	M-9	3/8	9,5		
		13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	833	R-13	834	R-13-A	M-10	3/8	9,5	K50-600	
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	835	R-14	836	R-14-A	M-11	3/8	9,5		
		15	0,072	1,83	0,731	18,57	0,712	0,801	18,08	20,35	837	R-15	838	R-15-A	M-11	3/8	9,5		
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	839	R-15	840	R-15-A	M-12	3/8	9,5		
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5	K50-1250	TES3000 G1450 TESMini2 ES2
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5		
1	25,4	8	0,165	4,19	0,670	17,02	0,655	0,735	16,64	18,67	841	R-13	842	R-13-A	M-9	3/8	9,5	K60-400	TES3000 G1000 TESMini2 ES2
		9	0,148	3,76	0,704	17,88	0,685	0,774	17,40	19,66	835	R-14	836	R-14-A	M-11	3/8	9,5		
		10	0,134	3,40	0,732	18,59	0,712	0,801	18,08	20,35	837	R-15	838	R-15-A	M-11	3/8	9,5		
		11	0,120	3,05	0,760	19,30	0,740	0,829	18,80	21,06	843	R-16	844	R-16-A	M-12	3/8	9,5		
		12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	845	R-17	846	R-17-A	M-12	3/8	9,5	K50-400	
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	847	R-18	848	R-18-A	M-12	3/8	9,5		
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	849	R-18	850	R-18-A	M-13	3/8	9,5		
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5		
		16	0,065	1,65	0,870	22,10	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5		
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5	K50-600	
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5		
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5		
		20	0,035	0,89	0,930	23,62	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5		
1-1/8	28,5	8	0,165	4,19	0,795	20,19	0,776	0,875	19,71	22,23	853	R-20	854	R-20-A	M-13	3/8	9,5	K60-400	TES3000 G1000 TESMini2 DU1
		9	0,148	3,76	0,829	21,06	0,810	0,909	20,57	23,09	849	R-18	850	R-18-A	M-13	3/8	9,5		
		10	0,134	3,40	0,857	21,77	0,837	0,936	21,26	23,77	851	R-19	852	R-19-A	M-13	3/8	9,5		
		11	0,120	3,05	0,885	22,48	0,865	0,964	21,97	24,49	855	R-21	856	R-21-A	M-13	3/8	9,5		
		12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	857	R-21	858	R-21-A	M-14	1/2	12,7		
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	859	R-22	860	R-22-A	M-14	1/2	12,7		
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	861	R-23	862	R-23-A	M-15	1/2	12,7		
		15	0,072	1,83	0,981	24,92	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7		
		16	0,065	1,65	0,995	25,27	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7		
		17	0,058	1,47	1,009	25,63	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7		
		18	0,049	1,24	1,027	26,09	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7		
1-1/4	31,7	8	0,165	4,19	0,92	23,37	0,901	1,010	22,89	25,65	865	R-25	866	R-25-A	M-15	1/2	12,7	K60-400	TES3000 G1000 TESMini2 DU1
		9	0,148	3,76	0,954	24,23	0,935	1,044	23,75	26,52	861	R-23	862	R-23-A	M-15	1/2	12,7		
		10	0,134	3,40	0,982	24,94	0,962	1,071	24,43	27,20	863	R-24	864	R-24-A	M-15	1/2	12,7		
		11	0,120	3,05	1,010	25,65	0,990	1,099	25,15	27,91	867	R-26	868	R-26-A	M-16	1/2	12,7		
		12	0,109	2,77	1,032	26,21	1,013	1,122	25,73	28,50	869	R-27	870	R-27-A	M-16	1/2	12,7		
		13	0,095	2,41	1,060	26,92	1,041	1,150	26,44	29,21	871	R-28	872	R-28-A	M-17	1/2	12,7		
		14	0,083	2,11	1,084	27,53	1,060	1,169	26,92	29,69	873	R-29	874	R-29-A	M-17	1/2	12,7		
		15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7		
		16	0,065	1,65	1,12	28,45	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7		
		17	0,058	1,47	1,134	28,80	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7		
		18	0,049	1,24	1,152	29,26	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7		

					ID		INCH		MM		1/2 12,7	1 1/2" 38,1 MM	1 1/4 31,7	2 1/4" 57,1 MM				* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
1-3/8	34,9	8	0,165	4,19	1,045	26,54	1,026	1,135	26,06	28,83	877	R-31	878	R-31-A	M-17	1/2	12,7		
		9	0,148	3,76	1,079	27,41	1,060	1,169	26,92	29,69	873	R-29	874	R-29-A	M-17	1/2	12,7		
		10	0,134	3,40	1,107	28,12	1,087	1,196	27,61	30,38	875	R-30	876	R-30-A	M-17	1/2	12,7	K60-250	TES3000 G400
		11	0,120	3,05	1,135	28,83	1,115	1,224	28,32	31,09	879	R-30	880	R-30-A	M-18	1/2	12,7		
		12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	881	R-32	882	R-32-A	M-18	1/2	12,7		
		13	0,095	2,41	1,185	30,10	1,160	1,275	29,46	32,39	883	R-33	884	R-33-A	M-19	1/2	12,7	K60-400	TESMini2 DU1
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	885	R-34	886	R-34-A	M-20	1/2	12,7		
		15	0,072	1,83	1,231	31,27	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7		
		16	0,065	1,65	1,245	31,62	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7		
1-1/2	38,1	8	0,165	4,19	1,170	29,72	1,145	1,260	29,08	32,00	889	R-34	890	R-34-A	M-19	1/2	12,7		
		9	0,148	3,76	1,204	30,58	1,145	1,294	29,08	32,87	885	R-34	886	R-34-A	M-20	1/2	12,7		
		10	0,134	3,40	1,232	31,29	1,206	1,321	30,63	33,55	887	R-35	888	R-35-A	M-20	1/2	12,7	K60-250	
		11	0,120	3,05	1,260	32,00	1,235	1,350	31,37	34,29	891	R-36	892	R-36-A	M-20	1/2	12,7		
		12	0,109	2,77	1,282	32,56	1,257	1,372	31,93	34,85	893	R-37	894	R-37-A	M-20	1/2	12,7		
		13	0,095	2,41	1,310	33,27	1,285	1,400	32,64	35,56	895	R-37	896	R-37-A	M-21	1/2	12,7		TES3000 G400
		14	0,083	2,11	1,334	33,88	1,285	1,400	32,64	35,56	895	R-37	896	R-37-A	M-21	1/2	12,7		
		15	0,072	1,83	1,356	34,44	1,331	1,446	33,81	36,73	897	R-38	898	R-38-A	M-21	1/2	12,7		TESMini2 DU1
		16	0,065	1,65	1,370	34,80	1,331	1,446	33,81	36,73	897	R-38	898	R-38-A	M-21	1/2	12,7		
		17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7	K60-400	
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7		
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7		
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	899	R-38	900	R-38-A	M-22	1/2	12,7		

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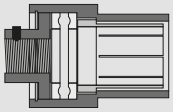
ID		T
12,98 - 36,68 MM	15,8 - 38,1 MM	12,7 - 57,1 MM
0,509” - 1,440”	5/8” – 1-1/2”	1/2” - 2 1/4”



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											1/2" 12,7	1 1/2" 38,1 MM	1 1/4" 31,7	2 1/4" 57,1MM				* .	* .
					ID		INCH		MM										
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
5/8	15,8	17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	815-5	R-4-5	816-5	R-4-A-5	M-816-5	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	817-5	R-4-5	818-5	R-4-A-5	M-9	3/8	9,5		
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	819-5	R-4-5	820-5	R-4-A-5	M-820-5	3/8	9,5		
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5		
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5		
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	819-5[S]	R-4-5	820-5[S]	R-4-A-5	820-5[S]	3/8	9,5		
3/4	19,0	13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	821-5	R-5-5	822-5	R-5-A-5	M-822-5	3/8	9,5	K50-600	TES3000 + G1450 TesMini2 + ES2
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	823-5	R-6-5	824-5	R-6-A-5	M-824-5	3/8	9,5		
		15	0,072	1,83	0,606	15,39	0,590	0,661	14,99	16,79	825-5	R-7-5	826-5	R-7-A-5	M-826-5	3/8	9,5		
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	827-5	R-7-5	828-5	R-7-A-5	M-13	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	829-5	R-7-5	830-5	R-7-A-5	M-830-5	3/8	9,5		
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	829-5	R-7-5	830-5	R-7-A-5	M-830-5	3/8	9,5		
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5		
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5		
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5		
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	831-5	R-9-5	832-5	R-9-A-5	M-13	3/8	9,5		
7/8	22,2	13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	833-5	R-9-5	834-5	R-9-A-5	M-14-3/8	3/8	9,5	K50-600	TES3000 G1450 TESMini2 ES2
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	835-5	R-10-5	836-5	R-10-A-5	M-15	3/8	9,5		
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	839-5	R-11-5	840-5	R-11-A-5	M-840-5	3/8	9,5		
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	843-5	R-11-5	844-5	R-11-A-5	M-17-3/8	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DU0
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	843-5	R-11-5	844-5	R-11-A-5	M-17-3/8	3/8	9,5		
		19	0,042	1,07	0,791	20,09	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5		
		20	0,035	0,89	0,805	20,45	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5		
		21	0,032	0,81	0,811	20,60	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5		
		22	0,028	0,71	0,819	20,80	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5		

					ID						1/2"	1 1/2"	1 1/4"	2 1/4"				*	*
							INCH		MM		12,7	38,1 MM	31,7	57,1MM					
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM	.	.
1	25,4	12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	845-5	R-11-5	846-5	R-11-A-5	M-18-3/8	3/8	9,5	K50-600	TES3000 G1450 TESMini2 ES2
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	847-5	R-13-5	848-5	R-13-A-5	M-18-3/8	3/8	9,5		
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	849-5	R-12-5	850-5	R-12-A-5	M-850-5	3/8	9,5		
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	851-5	R-14-5	852-5	R-14-A-5	M-852-5	3/8	9,5		
		16	0,065	1,65	0,87	22,10	0,837	0,936	21,26	23,77	851-5	R-13-5	852-5	R-13-A-5	M-852-5	3/8	9,5		
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DU0
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5		
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5		
		20	0,035	0,89	0,93	23,62	0,865	0,964	21,97	24,49	855-5	R-13-5	856-5	R-13-A-5	M-856-5	3/8	9,5		
		21	0,032	0,81	0,936	23,77	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5		
		22	0,028	0,71	0,944	23,98	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5		
1-1/8	28,5	12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	857-5	R-15-5	858-5	R-15-A-5	M-21-3/8	3/8	9,5	K60-400	TES3000 + G1000 TESMini2 + DU1
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	859-5	R-16-5	860-5	R-16-A-5	M-860-5	1/2	12,7		
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	861-5	R-17-5	862-5	R-17-A-5	M-862-5	1/2	12,7		
1-1/4	31,7	15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	875-5	R-21-5	876-5	R-21-A-5	M-876-5	1/2	12,7	K60-400	TES3000 G1000 TESMini2 DU1
		16	0,065	1,65	1,120	28,45	1,087	1,196	27,61	30,38	875-5	R-21-5	876-5	R-21-A-5	M-876-5	1/2	12,7		
		17	0,058	1,47	1,134	28,80	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
		18	0,049	1,24	1,152	29,26	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
		19	0,042	1,07	1,166	29,62	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
		20	0,035	0,89	1,180	29,97	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
		21	0,032	0,81	1,186	30,12	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
		22	0,028	0,71	1,194	30,33	1,115	1,231	28,32	31,27	879-5	R-21-5	880-5	R-21-A-5	M-880-5	1/2	12,7		
1-3/8	34,9	12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	881-5	R-21-5	882-5	R-21-A-5	M-882-5	1/2	12,7	K60-250	
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	885-5	R-23-5	886-5	R-23-A-5	M-882-5	1/2	12,7		
1-1/2	38,1	17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7	K60-900	TES3000 G1000 TESMini2 ES2
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7		
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7		
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7		
		21	0,032	0,81	1,436	36,47	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7		
		22	0,028	0,71	1,444	36,68	1,331	1,472	33,81	37,39	899-5	R-29-5	900-5	R-29-A-5	M-900-5	1/2	12,7		

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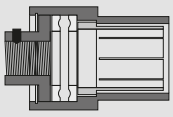
ID		T
8,48 - 36,32 MM	12,7 - 38,1 MM	
0,334 - 1,430”	1/2” – 1-1/2”	



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		INCH	MM
1 " 38,1	STD	1 1/2 - 6”	38,1 - 152,4 mm
	A	1 1/2 - 8"	38,1 - 203,2 mm
	B	1 1/2 - 10"	38,1 - 254,0 mm
	C	1 1/2 - 12”	38,1 - 304,8 mm
2 " 57,1	STD	2 1/4 - 6 3/4”	57,1 - 171,4 mm
	A	2 1/4 - 8 3/4”	57,1 - 222,2 mm
	B	2 1/4 - 10 3/4”	57,1 - 273,0 mm
	C	2 1/4 - 12 3/4	57,1 - 323,8 mm

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ID							INCH		MM		1/2" 6" 38,1 152,4 MM		2 1/4" 6 3/4" 57,1 171,4 MM					* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
1/2	12,7	14	0,083	2,11	0,334	8,48	0,324	0,374	8,23	9,50	1197	797	-	-	1197	3/8	9,5		
		15	0,072	1,83	0,356	9,04	0,348	0,398	8,84	10,11	1199	R-1	-	-	1199	3/8	9,5	K20-500	TES300 S1500
		16	0,065	1,65	0,370	9,40	0,36	0,41	9,14	10,41	1201	R-1	-	-	M-51	3/8	9,5		
		17	0,058	1,47	0,384	9,75	0,374	0,424	9,50	10,77	1203	R-2	-	-	M-51	3/8	9,5		TESMini2 HT0
		18	0,049	1,24	0,402	10,21	0,392	0,447	9,96	11,35	1205	R-3	-	-	M-52	3/8	9,5	K20-1800	
		20	0,035	0,89	0,430	10,92	0,406	0,461	10,31	11,71	1205[S]	R-3	-	-	M-53	3/8	9,5		
5/8	15,8	12	0,109	2,77	0,407	10,34	0,392	0,447	9,96	11,35	1205	R-3	-	-	M-52	3/8	9,5		TES3000 G1450
		13	0,095	2,41	0,435	11,05	0,425	0,480	10,80	12,19	1207	R-4	-	-	M-53	3/8	9,5	K50-600	
		14	0,083	2,11	0,459	11,66	0,449	0,509	11,40	12,93	1209	R-4	1210	R-4-A	M-54	3/8	9,5		TesMini2 ES2
		15	0,072	1,83	0,481	12,22	0,471	0,536	11,96	13,61	1211	R-5	1212	R-5A	M-55	3/8	9,5		
		16	0,065	1,65	0,495	12,57	0,485	0,550	12,32	13,97	1213	R-6	1214	R-6A	M-55	3/8	9,5		
		17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	1215	R-6	1216	R-6A	M-56	3/8	9,5		
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	1217	R-7	1218	R-7-A	M-57	3/8	9,5		TES3000 G1000
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	1219	R-7	1220	R-7-A	M-56	3/8	9,5	K50-1250	
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5		TESMini2 DUO
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5		
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	1219[S]	R-7	1220[S]	R-7-A	M-58	3/8	9,5		

					ID		INCH		MM		1/2" 6" 38,1 152,4 MM		2 1/4" 6 3/4" 57,1 171,4 MM					*	*
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
3/4	19	10	0,134	3,40	0,482	12,24	0,471	0,536	11,96	13,61	1211	R-5	1212	R-5-A	M-55	3/8	9,5	K60-900	TES3000 + G1000 TESMini2 + ES2
		11	0,120	3,05	0,510	12,95	0,499	0,564	12,67	14,33	1215	R-6	1216	R-6-A	M-56	3/8	9,5		
		12	0,109	2,77	0,532	13,51	0,522	0,582	13,26	14,78	1219	R-7	1220	R-7-A	M-56	3/8	9,5		
		13	0,095	2,41	0,560	14,22	0,55	0,615	13,97	15,62	1221	R-8	1222	R-8-A	M-58	3/8	9,5	K50-400	TES3000 G1450
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	1223	R-9	1224	R-9-A	M-58	3/8	9,5		
		15	0,072	1,83	0,606	15,39	0,596	0,661	15,14	16,79	1225	R-10	1226	R-10-A	M-58	3/8	9,5	K50-600	TESMini2 ES2
		16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	1227	R-10	1228	R-10-A	M-59	3/8	9,5		
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5	K60-900	TES3000 G1000 TESMini2 DUO
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5		
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
7/8	22,2	10	0,134	3,40	0,607	15,42	0,596	0,661	15,14	16,79	1225	R-10	1226	R-10-A	M-58	3/8	9,5	K50-400	TES3000 G1000 TESMini2 ES2
		11	0,120	3,05	0,635	16,13	0,619	0,699	15,72	17,75	1229	R-11	1230	R-11-A	M-59	3/8	9,5		
		12	0,109	2,77	0,657	16,69	0,642	0,722	16,31	18,34	1231	R-12	1232	R-12-A	M-59	3/8	9,5		
		13	0,095	2,41	0,685	17,40	0,67	0,750	17,02	19,05	1233	R-13	1234	R-13-A	M-60	3/8	9,5	K50-600	
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	1235	R-14	1236	R-14-A	M-61	3/8	9,5		
		15	0,072	1,83	0,731	18,57	0,712	0,801	18,08	20,35	1237	R-15	1238	R-15-A	M-61	3/8	9,5		
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	1239	R-15	1240	R-15-A	M-62	3/8	9,5		
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5	K50-1250	TES3000 + G1450 TESMini2 ES2
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5		
1	25,4	8	0,165	4,19	0,670	17,02	0,655	0,735	16,64	18,67	1241	R-13	1242	R-13-A	M-59	3/8	9,5	K60-400	TES3000 G1000 TESMini2 ES2
		9	0,148	3,76	0,704	17,88	0,685	0,774	17,40	19,66	1235	R-14	1236	R-14-A	M-61	3/8	9,5		
		10	0,134	3,40	0,732	18,59	0,712	0,801	18,08	20,35	1237	R-15	1238	R-15-A	M-61	3/8	9,5		
		11	0,120	3,05	0,760	19,30	0,740	0,829	18,80	21,06	1243	R-16	1244	R-16-A	M-62	3/8	9,5		
		12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	1245	R-17	1246	R-17-A	M-62	3/8	9,5		
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	1247	R-18	1248	R-18-A	M-62	3/8	9,5	K50-400	
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	1249	R-18	1250	R-18-A	M-63	3/8	9,5		
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5		
		16	0,065	1,65	0,870	22,10	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5		
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5	K50-600	
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5		
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5		
		20	0,035	0,89	0,930	23,62	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5		
1-1/8	28,5	8	0,165	4,19	0,795	20,19	0,776	0,875	19,71	22,23	1253	R-20	1254	R-20-A	M-63	3/8	9,5	K60-400	TES3000 G1000 TESMini2 DU1
		9	0,148	3,76	0,829	21,06	0,810	0,909	20,57	23,09	1249	R-18	1250	R-18-A	M-63	3/8	9,5		
		10	0,134	3,40	0,857	21,77	0,837	0,936	21,26	23,77	1251	R-19	1252	R-19-A	M-63	3/8	9,5		
		11	0,120	3,05	0,885	22,48	0,865	0,964	21,97	24,49	1255	R-21	1256	R-21-A	M-63	3/8	9,5		
		12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	1257	R-21	1258	R-21-A	M-64	1/2	12,7		
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	1259	R-22	1260	R-22-A	M-64	1/2	12,7		
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	1261	R-23	1262	R-23-A	M-65	1/2	12,7		
		15	0,072	1,83	0,981	24,92	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7		
		16	0,065	1,65	0,995	25,27	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7		
		17	0,058	1,47	1,009	25,63	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7		
		18	0,049	1,24	1,027	26,09	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7		

			ID				INCH		MM		1/2" 6" 38,1 152,4 MM		2 1/4" 6 3/4" 57,1 171,4 MM					* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
1-1/4	31,7	8	0,165	4,19	0,92	23,37	0,901	1,010	22,89	25,65	1265	R-25	1266	R-25-A	M-65	1/2	12,7	K60-400	TES3000 G1000 TESMini2 DU1
		9	0,148	3,76	0,954	24,23	0,935	1,044	23,75	26,52	1261	R-23	1262	R-23-A	M-65	1/2	12,7		
		10	0,134	3,40	0,982	24,94	0,962	1,071	24,43	27,20	1263	R-24	1264	R-24-A	M-65	1/2	12,7		
		11	0,120	3,05	1,010	25,65	0,990	1,099	25,15	27,91	1267	R-26	1268	R-26-A	M-66	1/2	12,7		
		12	0,109	2,77	1,032	26,21	1,013	1,122	25,73	28,50	1269	R-27	1270	R-27-A	M-66	1/2	12,7		
		13	0,095	2,41	1,060	26,92	1,041	1,150	26,44	29,21	1271	R-28	1272	R-28-A	M-67	1/2	12,7		
		14	0,083	2,11	1,084	27,53	1,060	1,169	26,92	29,69	1273	R-29	1274	R-29-A	M-67	1/2	12,7		
		15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7		
		16	0,065	1,65	1,12	28,45	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7		
		17	0,058	1,47	1,134	28,80	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7		
		18	0,049	1,24	1,152	29,26	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7		
1-3/8	34,9	8	0,165	4,19	1,045	26,54	1,026	1,135	26,06	28,83	1277	R-31	1278	R-31-A	M-67	1/2	12,7	K60-250	TES3000 G400 TESMini2 DU1
		9	0,148	3,76	1,079	27,41	1,060	1,169	26,92	29,69	1273	R-29	1274	R-29-A	M-67	1/2	12,7		
		10	0,134	3,40	1,107	28,12	1,087	1,196	27,61	30,38	1275	R-30	1276	R-30-A	M-67	1/2	12,7		
		11	0,120	3,05	1,135	28,83	1,115	1,224	28,32	31,09	1279	R-30	1280	R-30-A	M-68	1/2	12,7		
		12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	1281	R-32	1282	R-32-A	M-68	1/2	12,7		
		13	0,095	2,41	1,185	30,10	1,160	1,275	29,46	32,39	1283	R-33	1284	R-33-A	M-69	1/2	12,7	K60-400	
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	1285	R-34	1286	R-34-A	M-70	1/2	12,7		
		15	0,072	1,83	1,231	31,27	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7		
		16	0,065	1,65	1,245	31,62	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7		
1-1/2	38,1	8	0,165	4,19	1,170	29,72	1,145	1,260	29,08	32,00	1289	R-34	1290	R-34-A	M-69	1/2	12,7	K60-250	TES3000 G400 TESMini2 DU1
		9	0,148	3,76	1,204	30,58	1,145	1,294	29,08	32,87	1285	R-34	1286	R-34-A	M-70	1/2	12,7		
		10	0,134	3,40	1,232	31,29	1,206	1,321	30,63	33,55	1287	R-35	1288	R-35-A	M-70	1/2	12,7		
		11	0,120	3,05	1,260	32,00	1,235	1,350	31,37	34,29	1291	R-36	1292	R-36-A	M-70	1/2	12,7		
		12	0,109	2,77	1,282	32,56	1,257	1,372	31,93	34,85	1293	R-37	1294	R-37-A	M-70	1/2	12,7		
		13	0,095	2,41	1,310	33,27	1,285	1,400	32,64	35,56	1295	R-37	1296	R-37-A	M-71	1/2	12,7	K60-400	
		14	0,083	2,11	1,334	33,88	1,285	1,400	32,64	35,56	1295	R-37	1296	R-37-A	M-71	1/2	12,7		
		15	0,072	1,83	1,356	34,44	1,331	1,446	33,81	36,73	1297	R-38	1298	R-38-A	M-71	1/2	12,7		
		16	0,065	1,65	1,370	34,80	1,331	1,446	33,81	36,73	1297	R-38	1298	R-38-A	M-71	1/2	12,7		
		17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7		
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7		
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7		
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	1299	R-38	1300	R-38-A	M-72	1/2	12,7		

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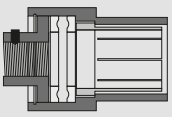
14,83 - 36,32 MM	19,0 - 38,1 MM	
0,584 - 1,430”	1/2 – 1-1/2”	



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		INCH	MM
1-1/2" 38,1	STD	1 1/2 - 6”	38,1 - 152,4 mm
	A	1 1/2 - 8"	38,1 - 203,2 mm
	B	1 1/2 - 10"	38,1 - 254,0 mm
	C	1 1/2 - 12”	38,1 - 304,8 mm
2-1/4" 57,1	STD	2 1/4 - 6 3/4”	57,1 - 171,4 mm
	A	2 1/4 - 8 3/4”	57,1 - 222,2 mm
	B	2 1/4 - 10 3/4”	57,1 - 273,0 mm
	C	2 1/4 - 12 3/4	57,1 - 323,8 mm

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ID							INCH		MM		1/2" 6" 38,1 152,4 MM		2 1/4" 6 3/4" 57,1 171,4 MM			INCH		* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM													
5/8	15,8	17	0,058	1,47	0,509	12,93	0,499	0,564	12,67	14,33	1215-5	R-4-5	1216-5	R-4-A-5	M-1216-5	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		18	0,049	1,24	0,527	13,39	0,517	0,572	13,13	14,53	1217-5	R-4-5	1218-5	R-4-A-5	M-59	3/8	9,5		
		19	0,042	1,07	0,541	13,74	0,522	0,582	13,26	14,78	1219-5	R-4-5	1220-5	R-4-A-5	M-1220-5	3/8	9,5		
		20	0,035	0,89	0,555	14,10	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]	3/8	9,5		
		21	0,032	0,81	0,561	14,25	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]	3/8	9,5		
		22	0,028	0,71	0,569	14,45	0,536	0,596	13,61	15,14	1219-5[S]	R-4-5	1220-5[S]	R-4-A-5	M-1220-5[S]	3/8	9,5		
3/4	19,0	13	0,095	2,41	0,560	14,22	0,550	0,615	13,97	15,62	1221-5	R-5-5	1222-5	R-5-A-5	M-1222-5	3/8	9,5	K50-600	TES3000 G1450 TesMini2 ES2
		14	0,083	2,11	0,584	14,83	0,574	0,639	14,58	16,23	1223-5	R-6-5	1224-5	R-6-A-5	M-1224-5	3/8	9,5		
		15	0,072	1,83	0,606	15,39	0,590	0,661	14,99	16,79	1225-5	R-7-5	1226-5	R-7-A-5	M-1226-5	3/8	9,5		
3/4	19,0	16	0,065	1,65	0,620	15,75	0,605	0,685	15,37	17,40	1227-5	R-7-5	1228-5	R-7-A-5	M-63	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DUO
		17	0,058	1,47	0,634	16,10	0,619	0,699	15,72	17,75	1229-5	R-7-5	1230-5	R-7-A-5	M-1230-5	3/8	9,5		
		18	0,049	1,24	0,652	16,56	0,619	0,699	15,72	17,75	1229-5	R-7-5	1230-5	R-7-A-5	M-1230-5	3/8	9,5		
		19	0,042	1,07	0,666	16,92	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63	3/8	9,5		
		20	0,035	0,89	0,680	17,27	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63	3/8	9,5		
		21	0,032	0,81	0,686	17,42	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63	3/8	9,5		
		22	0,028	0,71	0,694	17,63	0,642	0,722	16,31	18,34	1231-5	R-9-5	1232-5	R-9-A-5	M-63	3/8	9,5		

			ID																
							INCH		MM		1/2" 6" 38,1 152,4 MM		2 1/4" 6 3/4" 57,1 171,4 MM					* .	* .
INCH	MM	BWG	INCH	MM	INCH	MM										INCH	MM		
7/8	22,2	13	0,095	2,41	0,685	17,40	0,670	0,750	17,02	19,05	1233-5	R-9-5	1234-5	R-9-A-5	M-64-3/8	3/8	9,5	K50-600	TES3000 G1450 TESMini2 ES2
		14	0,083	2,11	0,709	18,01	0,685	0,774	17,40	19,66	1235-5	R-10-5	1236-5	R-10-A-5	M-65	3/8	9,5		
		16	0,065	1,65	0,745	18,92	0,726	0,815	18,44	20,70	1239-5	R-11-5	1240-5	R-11-A-5	M-1240-5	3/8	9,5		
		17	0,058	1,47	0,759	19,28	0,740	0,829	18,80	21,06	1243-5	R-11-5	1244-5	R-11-A-5	M-67-3/8	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DU0
		18	0,049	1,24	0,777	19,74	0,740	0,829	18,80	21,06	1243-5	R-11-5	1244-5	R-11-A-5	M-67-3/8	3/8	9,5		
		19	0,042	1,07	0,791	20,09	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5		
		20	0,035	0,89	0,805	20,45	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5		
		21	0,032	0,81	0,811	20,60	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5		
		22	0,028	0,71	0,819	20,80	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5		
1	25,4	12	0,109	2,77	0,782	19,86	0,763	0,852	19,38	21,64	1245-5	R-11-5	1246-5	R-11-A-5	M-68-3/8	3/8	9,5	K50-600	TES3000 G1450 TESMini2 ES2
		13	0,095	2,41	0,810	20,57	0,791	0,880	20,09	22,35	1247-5	R-13-5	1248-5	R-13-A-5	M-68-3/8	3/8	9,5		
		14	0,083	2,11	0,834	21,18	0,810	0,909	20,57	23,09	1249-5	R-12-5	1250-5	R-12-A-5	M-1250-5	3/8	9,5		
		15	0,072	1,83	0,856	21,74	0,837	0,936	21,26	23,77	1251-5	R-14-5	1252-5	R-14-A-5	M-1252-5	3/8	9,5		
		16	0,065	1,65	0,87	22,10	0,837	0,936	21,26	23,77	1251-5	R-14-5	1252-5	R-14-A-5	M-1252-5	3/8	9,5		
		17	0,058	1,47	0,884	22,45	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5	K50-1250	TES3000 G1000 TESMini2 DU0
		18	0,049	1,24	0,902	22,91	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5		
		19	0,042	1,07	0,916	23,27	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5		
		20	0,035	0,89	0,93	23,62	0,865	0,964	21,97	24,49	1255-5	R-13-5	1256-5	R-13-A-5	M-1256-5	3/8	9,5		
		21	0,032	0,81	0,936	23,77	0,883	0,982	22,43	24,94	1257-5	R-15-5	1282-5	R-15-A-5	M-71-3/8	3/8	9,5		
		22	0,028	0,71	0,944	23,98	0,883	0,982	22,43	24,94	1257-5	R-15-5	1282-5	R-15-A-5	M-71-3/8	3/8	9,5		
1-1/8	28,5	12	0,109	2,77	0,907	23,04	0,883	0,982	22,43	24,94	1257-5	R-15-5	1282-5	R-15-A-5	M-71-3/8	3/8	9,5	K60-400	TES3000 G1000 TESMini2 DU1
		13	0,095	2,41	0,935	23,75	0,916	1,015	23,27	25,78	1259-5	R-16-5	1260-5	R-16-A-5	M-1260-5	1/2	12,7		
		14	0,083	2,11	0,959	24,36	0,935	1,044	23,75	26,52	1261-5	R-17-5	1262-5	R-17-A-5	M-1262-5	1/2	12,7		
1-1/4	31,7	15	0,072	1,83	1,106	28,09	1,087	1,196	27,61	30,38	1275-5	R-21-5	1276-5	R-21-A-5	M-1276-5	1/2	12,7	K60-400	TES3000 G1000 TESMini2 DU1
		16	0,065	1,65	1,120	28,45	1,087	1,196	27,61	30,38	1275-5	R-21-5	1276-5	R-21-A-5	M-1276-5	1/2	12,7		
		17	0,058	1,47	1,134	28,80	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
		18	0,049	1,24	1,152	29,26	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
		19	0,042	1,07	1,166	29,62	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
		20	0,035	0,89	1,180	29,97	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
		21	0,032	0,81	1,186	30,12	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
		22	0,028	0,71	1,194	30,33	1,115	1,231	28,32	31,27	1279-5	R-21-5	1280-5	R-21-A-5	M-1280-5	1/2	12,7		
1-3/8	34,9	12	0,109	2,77	1,157	29,39	1,133	1,242	28,78	31,55	1281-5	R-21-5	1282-5	R-21-A-5	M-1282-5	1/2	12,7	K60-250	
		14	0,083	2,11	1,209	30,71	1,179	1,294	29,95	32,87	1285-5	R-23-5	1286-5	R-23-A-5	M-1282-5	1/2	12,7		
1-1/2	38,1	17	0,058	1,47	1,384	35,15	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7	K60-900	TES3000 G1000 TESMini2 ES2
		18	0,049	1,24	1,402	35,61	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7		
		19	0,042	1,07	1,416	35,97	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7		
		20	0,035	0,89	1,430	36,32	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7		
		21	0,032	0,81	1,436	36,47	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7		
		22	0,028	0,71	1,444	36,68	1,331	1,472	33,81	37,39	1299-5	R-29-5	1300-5	R-29-A-5	M-1300-5	1/2	12,7		

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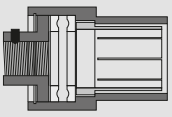
13,51 – 22,45 mm	15,8 – 25,4	38,1 – 57,1 MM
0,532 - 0,884”	- 1”	1 - 2 ”



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ID		1 1/2” •38,1 MM•		2 1/4” •57,1 MM•		INCH		MM		.		*	
INCH	MM												
0,532	13,51	619	K-7	620	K-7A	0,511	0,570	12,98	14,48	F-8	M-6	TESMini 2, ES2	K50-600
0,560	14,22	621	K-8	622	K-8A	0,539	0,606	13,69	15,39	F-8	M-8	TESMini 2, ES2	K50-600
0,584	14,83	623	K-9	624	K-9A	0,562	0,629	14,27	15,98	F-9	M-8	TESMini 2, ES2	K50-600
0,606	15,39	625	K-10	626	K-10A	0,586	0,649	14,88	16,48	F-10	M-8	TESMini 2, ES2	K50-600
0,620	15,75	627	K-10	628	K-10A	0,594	0,677	15,09	17,20	F-10	M-9	TESMini 2, ES2	K50-600
0,634	16,10	629	K-11	630	K-11 A	0,610	0,688	15,49	17,48	F-11	M-9	TESMini 2, ES2	K50-400
0,657	16,69	631	K-12	632	K-12A	0,633	0,712	16,08	18,08	F-12	M-9	TESMini 2, ES2	K50-400
0,670	17,02	641	K-13	642	K-13A	0,645	0,724	16,38	18,39	F-13	M-9	TESMini 2, ES2	K50-400
0,685	17,40	633	K-13	634	K-13A	0,661	0,740	16,79	18,80	F-13	M-10	TESMini 2, ES2	K50-400
0,709	18,01	635	K-14	636	K-14A	0,677	0,763	17,20	19,38	F-14	M-11	TESMini 2, ES2	K60-900
0,731	18,57	637	K-15	638	K-15A	0,700	0,791	17,78	20,09	F-15	M-11	TESMini 2, ES2	K60-900
0,745	18,92	639	K-15	640	K-15A	0,716	0,807	18,19	20,50	F-15	M-12	TESMini 2, ES2	K60-900
0,760	19,30	643	K-16	644	K-16A	0,732	0,818	18,59	20,78	F-16	M-12	TESMini 2, DU1	K60-900
0,782	19,86	645	K-17	646	K-17A	0,751	0,842	19,08	21,39	F-17	M-12	TESMini 2, DU1	K60-900
0,795	20,19	653	K-20	654	K-20A	0,767	0,866	19,48	22,00	F-20	M-13	TESMini 2, DU1	K60-900
0,810	20,57	647	K-18	648	K-18A	0,779	0,870	19,79	22,10	F-18	M-12	TESMini 2, DU1	K60-900
0,834	21,18	649	K-18	650	K-18A	0,799	0,897	20,29	22,78	F-18	M-13	TESMini 2, DU1	K60-900
0,856	21,74	651	K-19	652	K-19A	0,826	0,921	20,98	23,39	F-19	M-13	TESMini 2, DU1	K60-900
0,884	22,45	655	K-21	656	K-21A	0,854	0,948	21,69	24,08	F-21	M-13	TESMini 2, DU1	K60-900

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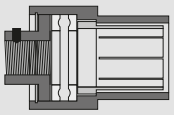
ID		T
8,48 - 36,32 mm	44,4 - 76,2 mm	12,7 - 101,6 mm
0,334 - 1,430”	13/4 - 3”	11/2 - 21/4”



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			ID				INCH		MM						. *	. *
INCH	MM	BWG	INCH	MM	INCH	MM	MIN		MIN					INCH		
1-3/4	44,4	8	0,165	4,19	1,42	36,07	1,368	1,55	34,75	39,37	8012-1-3/4-8	R-33-A	M-90	3/4	K60-400	TESMini2 DU1
		10	0,134	3,40	1,482	37,64	1,420	1,607	36,07	40,82	8012-1-3/4-10	R-37-A	M-90	3/4		
		11	0,120	3,05	1,510	38,35	1,454	1,635	36,93	41,53	8012-1-3/4-11	R-42	M-90	3/4		
		12	0,109	2,77	1,532	38,91	1,482	1,657	37,64	42,09	8012-1-3/4-12	R-44	M-90	3/4		
		13	0,095	2,41	1,560	39,62	1,510	1,685	38,35	42,80	8012-1-3/4-13	R-46	M-90	3/4		
		14	0,083	2,11	1,584	40,23	1,532	1,709	38,91	43,41	8012-1-3/4-14	R-48	M-90	3/4	K60-900	
2	50,8	8	0,165	4,19	1,670	42,42	1,595	1,795	40,51	45,59	8012-2-8	R-48	M-91	3/4	K60-250	TESMini2 K90-E-190
		10	0,134	3,40	1,732	43,99	1,640	1,857	41,66	47,17	8012-2-10	R-50	M-91	3/4		
		11	0,120	3,05	1,760	44,70	1,670	1,885	42,42	47,88	8012-2-11	R-52	M-91	3/4		
		12	0,109	2,77	1,782	45,26	1,704	1,907	43,28	48,44	8012-2-12	R-54	M-91	3/4		
		13	0,095	2,41	1,810	45,97	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
		14	0,083	2,11	1,834	46,58	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
		15	0,072	1,83	1,856	47,14	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
		16	0,065	1,65	1,870	47,50	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
		17	0,058	1,47	1,884	47,85	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
		18	0,049	1,24	1,902	48,31	1,732	1,956	43,99	49,68	8012-2-13-18	R-56	M-91	3/4		
2-1/4	57,1	10	0,134	3,40	1,982	50,34	1,890	2,107	48,01	53,52	8012-2-1/4-10	R-56	M-92	3/4	K60-250	TESMini2 K90-E-190
		11	0,120	3,05	2,010	51,05	1,920	2,135	48,77	54,23	8012-2-1/4-11	R-58	M-92	3/4		
		12	0,109	2,77	2,032	51,61	1,954	2,157	49,63	54,79	8012-2-1/4-12	R-60	M-92	3/4		
		13	0,095	2,41	2,060	52,32	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4		
		14	0,083	2,11	2,084	52,93	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4		
		15	0,072	1,83	2,106	53,49	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4		
		16	0,065	1,65	2,120	53,85	1,982	2,185	50,34	55,50	8012-2-1/4-13-16	R-62	M-92	3/4		
2-1/2	63,5	10	0,134	3,40	2,232	56,69	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4	K60-250	TESMini2 K90-E-190
		11	0,120	3,05	2,260	57,40	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4		
		12	0,109	2,77	2,282	57,96	2,140	2,407	54,36	61,14	8012-2-1/2-10-12	R-64	M-93	3/4		
		13	0,095	2,41	2,310	58,67	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		
		14	0,083	2,11	2,334	59,28	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		
		15	0,072	1,83	2,356	59,84	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		
		16	0,065	1,65	2,370	60,20	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		
		17	0,058	1,47	2,384	60,55	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		
		18	0,049	1,24	2,402	61,01	2,232	2,450	56,69	62,23	8012-2-1/2-13-18	R-64	M-94	3/4		

			ID				INCH		MM						. *	. *
INCH	MM	BWG	INCH	MM	INCH	MM	MIN		MIN					INCH		
2-3/4	69,8	10	0,134	3,40	2,482	63,04	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1	K72-RT-90	TESMini2 K90-E-90
		11	0,120	3,05	2,510	63,75	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
		12	0,109	2,77	2,532	64,31	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
		13	0,095	2,41	2,560	65,02	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
		14	0,083	2,11	2,584	65,63	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
		15	0,072	1,83	2,606	66,19	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
		16	0,065	1,65	2,620	66,55	2,390	2,702	60,71	68,63	8012-2-3/4-10-16	R-66	M-96	1		
3	76,2	8	0,165	4,19	2,670	67,82	2,560	2,829	65,02	71,86	8012-3-8-9	R-67	M-97	1	K72-RT-90	TESMini2 K90-E-90
		9	0,148	3,76	2,704	68,68	2,560	2,829	65,02	71,86	8012-3-8-9	R-67	M-97	1		
		10	0,134	3,40	2,732	69,39	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		11	0,120	3,05	2,760	70,10	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		12	0,109	2,77	2,782	70,66	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		13	0,095	2,41	2,810	71,37	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		14	0,083	2,11	2,834	71,98	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		15	0,072	1,83	2,856	72,54	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		16	0,065	1,65	2,870	72,90	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		17	0,058	1,47	2,884	73,25	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		
		18	0,049	1,24	2,902	73,72	2,640	2,952	67,06	74,98	8012-3-10-18	R-67	M-96	1		

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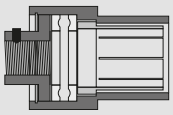
ID	OD
8,0 - 50,0 mm	9,5 - 50,8 mm
0,315 - 1,969”	0,374 - 2,000”



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MM		INCH							*	
MIN		MIN					MM	INCH		
7,80	9,90	0,307	0,390	TRE-797	R-797	M-797	9,5	3/8	K20-1800	TesMini 2 HT-0
8,60	11,00	0,339	0,433	TRE-801	R-1	M-1	9,5	3/8	K20-1800	TesMini 2 HT-0
9,40	12,00	0,370	0,472	TRE-805	R-3	M-2	9,5	3/8	K20-1800	TesMini 2 HT-0
11,30	14,30	0,445	0,563	TRE-811	R-5	M-5	9,5	3/8	K20-1800	TesMini 2 HT-0
11,90	15,10	0,469	0,594	TRE-815	R-6	M-6	9,5	3/8	K20-1800	TesMini 2 HT-0
12,30	15,60	0,484	0,614	TRE-819	R-7	M-6	9,5	3/8	K20-1800	TesMini 2 HT-0
13,70	17,00	0,539	0,669	TRE-823	R-9	M-8	9,5	3/8	K20-1800	TesMini 2 HT-0
15,50	19,10	0,610	0,752	TRE-831	R-12	M-9	9,5	3/8	K20-550	TesMini 2 DU-0
16,20	19,80	0,638	0,780	TRE-833	R-13	M-10	9,5	3/8	K20-550	TesMini 2 DU-0
17,90	21,85	0,705	0,860	TRE-843	R-16	M-12	9,5	3/8	K20-550	TesMini 2 DU-0
19,70	23,90	0,776	0,941	TRE-849	R-18	M-13	9,5	3/8	K20-550	TesMini 2 DU-0
21,10	25,30	0,831	0,996	TRE-855	R-21	M-13	9,5	3/8	K50-1250	TesMini 2 DU-0
23,50	28,00	0,925	1,102	TRE-863	R-24	M-15	12,7	1/2	K50-1250	TesMini 2 DU-0
25,60	30,00	1,008	1,181	TRE-871	R-28	M-17	12,7	1/2	K50-1250	TesMini 2 DU-0
27,90	32,35	1,098	1,274	TRE-881	R-32	M-18	12,7	1/2	K50-1250	TesMini 2 DU-0
29,10	33,70	1,146	1,327	TRE-885	R-34	M-20	12,7	1/2	K50-600	TesMini 2 DU-0
31,80	36,40	1,252	1,433	TRE-895	R-37	M-21	12,7	1/2	K50-600	TesMini 2 DU-0
32,90	38,20	1,295	1,504	TRE-899	R-38	M-22	12,7	1/2	K50-600	TesMini 2 DU-1
36,40	43,20	1,433	1,701	TRE-9012-13/4-12	R-44	M-90	19,1	3/4	K60-900	TesMini 2 DU-1
39,20	46,80	1,543	1,843	TRE-8012-2-8	R-48	M-91	19,1	3/4	K60-900	TesMini 2 DU-1
41,20	49,10	1,622	1,933	TRE-8012-2-11	R-52	M-91	19,1	3/4	K60-900	TesMini 2 DU-1
42,60	50,90	1,677	2,004	TRE-8012-2-13-18	R-56	M-91	19,1	3/4	K60-900	TesMini 2 DU-1
46,70	54,80	1,839	2,157	TRE-21/4-10	R-56	M-92	19,1	3/4	K60-900	TesMini 2 DU-1

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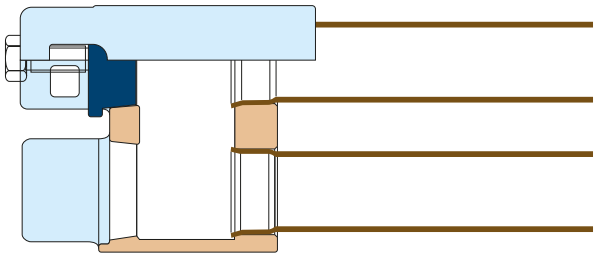

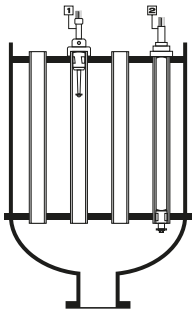

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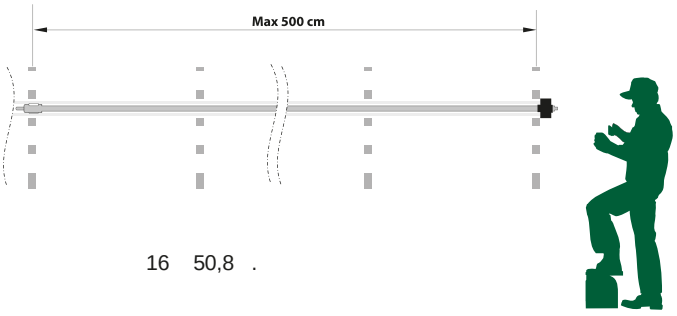

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(101,6) K77-RT-25

	K73 RT 375	K73 RT 280	K73 RT 190	TESMINI K90 E 190	K72 RT 90	K90 E 90
KS						
KS-19	OK					
KS-20	OK					
KS-22	OK					
KS-23	OK					
KS-24	OK					
KS-25	OK					
KS-27	OK					
KS-28	OK	OK		OK		
KS-29	OK	OK		OK		
KS-30	OK	OK		OK		
KS-32	OK	OK	OK	OK		
KS-35	OK	OK	OK	OK		OK
KS-37	OK	OK	OK	OK		OK
KS-40	OK	OK	OK	OK	OK	OK
KS-42	OK	OK	OK	OK	OK	OK
KS-44		OK	OK	OK	OK	OK
KS-47		OK	OK	OK	OK	OK
KS-49		OK	OK	OK	OK	OK
KS-52		OK	OK	OK	OK	OK
KS-54			OK	OK	OK	OK
KS-57			OK	OK	OK	OK
KS-60					OK	OK
KS-65					OK	OK
KS-68					OK	OK
KS-72					OK	OK
KS-77					OK	OK
KS-82					OK	OK
KS-86					OK	OK
KS-90					OK	OK
KS-96					OK	OK
PZ						
PZ-19	OK					
PZ-20	OK					
PZ-22	OK					
PZ-25	OK					
PZ-28	OK	OK		OK		
PZ-29	OK	OK		OK		

	K73 RT 375	K73 RT 280	K73 RT 190	TESMINI K90 E 190	K72 RT 90	K90 E 90
PZ-30	OK	OK		OK		
PZ-32	OK	OK	OK	OK		
PZ-35	OK	OK	OK	OK		
PZ-37	OK	OK	OK	OK		
PZ-40	OK	OK	OK	OK	OK	OK
PZ-42	OK	OK	OK	OK	OK	OK
PZ-44		OK	OK	OK	OK	OK
PZ-47		OK	OK	OK	OK	OK
PZ-49		OK	OK	OK	OK	OK
PZ-52		OK	OK	OK	OK	OK
PZ-54			OK	OK	OK	OK
PZ-57			OK	OK	OK	OK
PZ-60					OK	OK
PZ-65					OK	OK
PZ-68					OK	OK
PZ-72					OK	OK
PZ-77					OK	OK
PZ-82					OK	OK
PZ-86					OK	OK
PZ-90					OK	OK
PZ-96					OK	OK
P2						
P2-280		OK		OK		
P2-290		OK		OK		
P2-300		OK		OK		
P2-320		OK	OK	OK		
P2-350		OK	OK	OK		OK
P2-370		OK	OK	OK		OK
P2-400		OK	OK	OK	OK	OK
P2-420		OK	OK	OK	OK	OK
P2-440		OK	OK	OK	OK	OK
P2-470		OK	OK	OK	OK	OK
P2-490		OK	OK	OK	OK	OK
P2-520			OK	OK	OK	OK
P2-540			OK	OK	OK	OK
P2-570					OK	OK
P2-600					OK	OK
P2-650					OK	OK

	K73 RT 375	K73 RT 280	K73 RT 190	TESMINI K90 E 190	K72 RT 90	K90 E 90
P2-680					OK	OK
FTKS						
FTKS-508			OK			OK
FTKS-635			OK		OK	OK
FTKS-762					OK	OK
FTPZ						
FTPZ-508			OK			OK
FTPZ-635			OK		OK	OK
FTPZ-762					OK	OK
UCRBT						
K-41633-00					OK	OK
K-42158-00					OK	OK
K-41359-00					OK	OK

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	A				B				C						
	MM		INCH		MM		•		MM		INCH				
													MM	INCH	
TKK-19	19	20	0,748	0,787	20	21	0,787	0,827	21	22	0,827	0,866	40	1,575	½”
TKK-20	20	21	0,787	0,826	21	22	0,827	0,866	22	23	0,866	0,906	40	1,575	½”
TKK-22	22	23	0,866	0,905	23	24	0,906	0,945	24	25	0,945	0,984	40	1,575	½”
TKK-23	23	24	0,906	0,944	24	25	0,945	0,984	25	26	0,984	1,024	40	1,575	½”
TKK-24	24	25	0,945	0,984	25	26	0,984	1,024	26	27	1,024	1,063	40	1,575	½”
TKK-25	25	26	0,984	1,023	26	27	1,024	1,063	27	28	1,063	1,102	40	1,575	½”
TKK-27	27	28	1,063	1,102	28	29	1,102	1,142	29	30	1,142	1,181	40	1,575	½”
TKK-28	28	29,3	1,102	1,153	29,3	30,6	1,154	1,205	30,6	32	1,205	1,260	50	1,969	½”
TKK-29	29	30,3	1,142	1,192	30,3	31,6	1,193	1,244	31,6	33	1,244	1,299	50	1,969	½”
TKK-30	30	31,3	1,181	1,232	31,3	32,6	1,232	1,283	32,6	34	1,283	1,339	50	1,969	½”
TKK-32	32	33,3	1,260	1,311	33,3	34,6	1,311	1,362	34,6	36	1,362	1,417	50	1,969	½”
TKK-37*1	35	37	1,378	1,456	37	39	1,457	1,535	39	41	1,535	1,614	65	2,559	¾”
TKK-37	37	39	1,457	1,535	39	41	1,535	1,614	41	43	1,614	1,693	65	2,559	¾”
TKK-42*2	40	42	1,575	1,653	42	44	1,654	1,732	44	46	1,732	1,811	65	2,559	¾”
TKK-42	42	44	1,654	1,732	44	46	1,732	1,811	46	48	1,811	1,890	65	2,559	¾”
TKK-44	44	46	1,732	1,811	46	48	1,811	1,890	48	50	1,890	1,969	65	2,559	¾”
TKK-47	47	49,4	1,850	1,944	49,4	51,7	1,945	2,035	51,7	54	2,035	2,126	75	2,953	¾”
TKK-49	49	51,4	1,929	2,023	51,4	53,7	2,024	2,114	53,7	56	2,114	2,205	75	2,953	¾”
TKK-49*3	52	54,6	2,047	2,149	54,4	56,9	2,142	2,240	57,7	59,2	2,272	2,331	75	2,953	¾”
TKK-54	54	56,6	2,126	2,228	56,6	59,3	2,228	2,335	59,3	62	2,335	2,441	82	3,228	¾”
TKK-57	57	60	2,244	2,362	60	63	2,362	2,480	63	66	2,480	2,598	90	3,543	¾”
TKK-65*4	60	63	2,362	2,480	63	66	2,480	2,598	66	69	2,598	2,717	90	3,543	¾”
TKK-65	65	68	2,559	2,677	68	71	2,677	2,795	71	74	2,795	2,913	90	3,543	¾”
TKK-72*5	68	71,4	2,677	2,811	71,4	74,7	2,811	2,941	74,7	78	2,941	3,071	100	3,937	1”
TKK-72	72	75,3	2,835	2,964	75,4	78,6	2,969	3,094	78,7	82	3,098	3,228	100	3,937	1”
TKK-77	77	80,4	3,031	3,165	80,4	83,7	3,165	3,295	83,7	87	3,295	3,425	100	3,937	1”
TKK-82	82	85,4	3,228	3,362	85,4	88,7	3,362	3,492	88,7	92	3,492	3,622	100	3,937	1”
TKK-86	86	89,4	3,386	3,519	89,4	92,7	3,520	3,650	92,7	96	3,650	3,780	100	3,937	1”
TKK-90	90	94	3,543	3,700	94	98	3,701	3,858	98	102	3,858	4,016	115	4,528	1”
TKK-96	96	100	3,780	3,937	100	104	3,937	4,094	104	108	4,094	4,252	115	4,528	1”

*1 KS-35
*2 KS-40
*3 re. KS-52
*4 re. KS-60
*5 re. KS-68

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	•	MM	•	MM
A	1,574	40	” - 3/4”	12 - 19
B	2,362	60	” – 1 ”	22 - 32
C	3,149	80	1• ” - 1• ”	35 - 45
D	3,937	100	1 ” - 2 ”	48 - 58

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OD				MM		INCH		NO.			. 29	NO.			NO.	•3 •			
INCH	MM	BWG							MM	INCH			MM	INCH		MM	INCH	INCH	MM
1	25,40	9-11	KS-19	19	22	0,75	0,87	RR12RK5	42	1,65	A	TK19	195	7,68	-	-	-	1/2	12,7
		13-14	KS-20	20	23	0,79	0,91	RR12RK5	42	1,65	A	TK20	195	7,68	-	-	-	1/2	12,7
1 1/4	31,75	7	KS-22	22	25	0,87	0,98	RR12RK5	42	1,65	A	TK22	195	7,68	-	-	-	1/2	12,7
		9	KS-23	23	26	0,91	1,02	RR13RK6	42	1,65	A	TK23	195	7,68	-	-	-	1/2	12,7
		10	KS-24	24	27	0,94	1,06	RR13RK6	42	1,65	A	TK24	195	7,68	-	-	-	1/2	12,7
		11-13	KS-25	25	28	0,98	1,10	RR13RK6	42	1,65	A	TK25	195	7,68	-	-	-	1/2	12,7
		12-14	KS-26	26	29	1,02	1,14	RR13RK6	42	1,65	A	TK26	195	7,68	-	-	-	1/2	12,7
		14-15	KS-27	27	30	1,06	1,18	RR15RK7	42	1,65	A	TK27	200	7,87	-	-	-	1/2	12,7
		16	KS-28	28	32	1,10	1,26	RR16RK8	42	1,65	B C	TK28	260	10,24	TKK28	175	6,89	3/4	19,0
1 1/2	38,10	7-10	KS-29	29	33	1,14	1,30	RR16RK8	42	1,65	B C	TK29	260	10,24	TKK29	175	6,89	3/4	19,0
		10-12	KS-30	30	34	1,18	1,34	RR16RK8	42	1,65	B C	TK30	260	10,24	TKK30	175	6,89	3/4	19,0
		12-14	KS-32	32	36	1,26	1,42	RR17RK9	42	1,65	B C	TK32	260	10,24	TKK32	175	6,89	3/4	19,0
		13-20	KS-33	33	38	1,99	1,49	RP33RR33	42	1,65	B C	TK33	290	11,41	TKK33	181	7,12	3/4	19,0
1 3/4	44,45	8-9	KS-35	35	41	1,38	1,61	RR21RK35	42	1,65	B C	TK37	310	12,20	TKK37	188	7,40	3/4	19,0
		10-12	KS-37	37	43	1,46	1,69	RR22RK10	42	1,65	B C	TK37	310	12,20	TKK37	188	7,40	3/4	19,0
		12-18	KS-39	39	45	1,53	1,77	RR40RK40	42	1,65	B C	TK37	310	12,20	TKK37	188	7,40	3/4	19,0
2	50,80	7-9	KS-40	40	46	1,57	1,81	RR40RK40	50	1,97	A B C D	TK42	310	12,20	TKK42	205	8,07	3/4	19,0
		10-13	KS-42	42	48	1,65	1,89	RR23RK11	50	1,97	A B C D	TK42	310	12,20	TKK42	205	8,07	3/4	19,0
		12-14	KS-44	44	50	1,73	1,97	RR23RK11	50	1,97	A B C D	TK44	310	12,20	TKK44	205	8,07	3/4	19,0
			KS-47	47	54	1,85	2,13	RR24RK12	50	1,97	A B C D	TK47	338	13,31	TKK47	218	8,58	3/4	19,0
2 1/4	57,15	10-13	KS-49	49	56	1,93	2,20	RR24RK12	50	1,97	A B C D	TK49	338	13,31	TKK49	218	8,58	3/4	19,0
		14-16	KS-52	52	59	2,05	2,32	RR25RK13	50	1,97	A B C D	TK49	338	13,31	TKK49	218	8,58	3/4	19,0
2 1/2	63,50	8-13	KS-54	54	62	2,13	2,44	RR26RK14	50	1,97	A B C D	TK54	375	14,76	TKK54	230	9,06	3/4	19,0
		12-16	KS-57	57	66	2,24	2,60	RR27RK15	50	1,97	A B C D	TK57	395	15,55	TKK57	235	9,25	3/4	19,0
2 3/4	69,85	7-11	KS-60	60	69	2,36	2,72	RR28RK16	50	1,97	A B C D	TK57	395	15,55	TKK57	235	9,25	3/4	19,0
3	76,20	7-8	KS-65	65	74	2,56	2,91	RR29RK17	50	1,97	A B C D	TK65	395	15,55	TKK65	235	9,25	3/4	19,0
		10-14	KS-68	68	78	2,68	3,07	RR30RK18	50	1,97	A B C D	TK72	425	16,73	TKK72	255	10,04	1	25,4
3 1/4	82,55	7-11	KS-72	72	82	2,83	3,23	RR31RK19	50	1,97	A B C D	TK72	425	16,73	TKK72	255	10,04	1	25,4
	82,55	15-16	KS-77	77	87	3,03	3,43	RR32RK20	50	1,97	A B C D	TK77	425	16,73	TKK77	255	10,04	1	25,4
3 1/2	88,90	10-13	KS-82	82	92	3,23	3,62	RR33RK21	50	1,97	A B C D	TK82	425	16,73	TKK82	255	10,04	1	25,4
3 3/4	95,25	8-12	KS-86	86	96	3,39	3,78	RR34RK22	50	1,97	A B C D	TK86	425	16,73	TKK86	255	10,04	1	25,4
4	101,60	9-12	KS-90	90	102	3,54	4,02	RR34RK22	50	1,97	A B C D	TK90	485	19,09	TKK90	275	10,83	1	25,4
		16	KS-96	96	108	3,78	4,25	RR35RK23	50	1,97	A B C D	TK96	485	19,09	TKK96	275	10,83	1	25,4

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OD				MM		INCH		NO.			. 29	NO.			NO.	• •3 •			
INCH	MM	BWG							MM	INCH			MM	INCH		MM	INCH	INCH	MM
1	25,40	11-12	PZ-19	19	22	0,75	0,87	RR12	42	1,654	A	TK19	195	7,677	-	-	-	12,7	1/2
		13-16	PZ-20	20	23	0,79	0,93	RR12	42	1,654	A	TK20	208	8,189	-	-	-	12,7	1/2
1-1/8	28,58	12-14	PZ-22	22	25	0,87	0,98	RR12	42	1,654	A	TK22	220	8,661	-	-	-	12,7	1/2
		14-16	PZ-23	23	26	0,91	1,02	RR13	42	1,564	A	TK23	220	8,661	-	-	-	12,7	1/2
		15-17	PZ-24	24	27	0,94	1,06	RR13	42	1,564	A	TK24	220	8,661	-	-	-	12,7	1/2
		16	PZ-25	25	28	0,98	1,14	RR13	42	1,654	A	TK25	220	8,661	-	-	-	12,7	1/2
1-1/4	31,75	12-14	PZ-26	26	29	1,02	1,14	RR13	42	1,654	A	TK26	220	8,661	-	-	-	12,7	1/2
		12-17	PZ-27	27	30	1,06	1,18	RR15	42	1,654	A	TK27	220	8,661	-	-	-	12,7	1/2
		16	PZ-28	28	32	1,10	1,26	RR16	42	1,654	B C	TK28	285	11,220	-	-	-	19,0	3/4
1-1/2	38,10	7-11	PZ-29	29	33	1,14	1,34	RR16	42	1,654	B C	TK29	285	11,220	-	-	-	19,0	3/4
		10-12	PZ-30	30	34	1,18	1,38	RR16	42	1,654	B C	TK30	285	11,220	-	-	-	19,0	3/4
		13-16	PZ-32	32	36	1,26	1,42	RR17	42	1,654	B C	TK32	260	10,236	-	-	-	19,0	3/4
		13-20	PZ-33	33	38	1,99	1,49	RP33	42	1,65	B C	TK33	290	11,41	TKK33	181,00	7,12	19,0	3/4
1-3/4	44,45	8-9	PZ-35	35	41	1,38	1,61	RR21	42	1,654	B C	TK37	310	12,205	TKK37	188,00	7,402	19,0	3/4
		10-16	PZ-37	37	43	1,46	1,69	RR22	42	1,654	B C	TK37	310	12,205	TKK37	188,00	7,402	19,0	3/4
		12-18	PZ-39	39	45	1,53	1,77	RR40	42	1,654	B C	TK37	310	12,205	TKK37	188,00	7,402	19,0	3/4
2	50,80	7-10	PZ-40	40	46	1,57	1,81	RR40	50	1,969	A B C D	TK42	310	12,205	TKK42	205,00	8,071	19,0	3/4
		11-12	PZ-42	42	48	1,65	1,89	RR23	50	1,969	A B C D	TK42	310	12,205	TKK42	205,00	8,071	19,0	3/4
		13-15	PZ-44	44	50	1,73	1,97	RR23	50	1,969	A B C D	TK44	310	12,205	TKK44	205,00	8,071	19,0	3/4
		16	PZ-47	47	54	1,85	2,13	RR24	50	1,969	A B C D	TK47	338	13,307	TKK47	218,00	8,583	19,0	3/4
2-1/4	57,15	10-12	PZ-49	49	56	1,93	2,20	RR24	50	1,969	A B C D	TK49	338	13,307	TKK49	218,00	8,583	19,0	3/4
		14-16	PZ-52	52	59	2,05	2,32	RR25	50	1,969	A B C D	TK49	338	13,307	TKK49	218,00	8,583	19,0	3/4
2-1/2	63,50	11-12	PZ-54	54	62	2,13	2,44	RR26	50	1,969	A B C D	TK54	375	14,764	TKK54	230,00	9,055	19,0	3/4
		13-16	PZ-57	57	66	2,24	2,60	RR27	50	1,969	A B C D	TK57	395	15,551	TKK57	235,00	9,252	19,0	3/4
2-3/4	69,85	7-11	PZ-60	60	69	2,36	2,72	RR28	50	1,969	A B C D	TK57	395	15,551	TKK57	235,00	9,252	19,0	3/4
3	76,20	7-11	PZ-65	65	74	2,56	2,91	RR29	50	1,969	A B C D	TK65	395	15,551	TKK65	235,00	9,252	19,0	3/4
3		12-13	PZ-68	68	78	2,68	3,07	RR30	50	1,969	A B C D	TK72	425	16,732	TKK72	255,00	10,039	25,40	1
3-1/4	82,55	7-12	PZ-72	72	82	2,83	3,23	RR31	50	1,969	A B C D	TK72	425	16,732	TKK72	255,00	10,039	25,40	1
		13-16	PZ-77	77	87	3,03	3,43	RR32	50	1,969	A B C D	TK77	425	16,732	TKK77	255,00	10,039	25,40	1
3-1/2	88,90	10-16	PZ-82	82	92	3,23	3,62	RR33	50	1,969	A B C D	TK82	425	16,732	TKK82	255,00	10,039	25,40	1
3-3/4	95,25	7-12	PZ-86	86	96	3,39	3,78	RR34	50	1,969	A B C D	TK86	425	16,732	TKK86	255,00	10,039	25,40	1
4	101,60	8-12	PZ-90	90	102	3,54	4,02	RR34	50	1,969	A B C D	TK90	485	19,094	TKK90	275,00	10,827	25,40	1
		13-16	PZ-96	96	108	3,78	4,25	RR35	50	1,969	A B C D	TK96	485	19,094	TKK96	275,00	10,827	25,40	1

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OD				INCH		MM		NO.				INCH	MM
INCH	MM	BWG							MM	INCH			
1-1/4”	31.7	16	P2-280	1.100	1.299	27.80	33.00	998	60	2,362	T-290	1/2”	12.7
1-1/2”	38.1	7-11	P2-290	1.140	1.330	28.80	34.00	1048	60	2,362	T-290	1/2”	12.7
		10-12	P2-300	1.173	1.337	29.80	35.00	1089	60	2,362	T-290	1/2”	12.7
		13-16	P2-320	1.251	1.456	31.80	37.00	1143	60	2,362	T-320	1/2”	12.7
1-3/4”	44.4	8-9	P2-350	1.370	1.614	34.80	41.00	RR21A	60	2,362	T-370	3/4”	19
		10-16	P2-370	1.448	1.692	36.80	43.00	RR22A	60	2,362	T-370	3/4”	19
2”	50.8	7-10	P2-400	1.566	1.811	39.80	46.00	RR40A	60	2,362	T-420	3/4”	19
		11-12	P2-420	1.645	1.889	41.80	48.00	RR23A	60	2,362	T-420	3/4”	19
		13-15	P2-440	1.724	1.968	43.80	50.00	RR23A	60	2,362	T-440	3/4”	19
		16	P2-470	1.842	2.125	46.80	54.00	RR24A	60	2,362	T-470	3/4”	19
2-1/4”	57.1	10-12	P2-490	1.921	2.204	48.80	56.00	RR24A	60	2,362	T-490	3/4”	19
		14-16	P2-520	2.039	2.332	51.80	59.00	RR25A	60	2,362	T-490	3/4”	19
2-1/2”	63.5	11-12	P2-540	2.118	2.440	53.80	62.00	RR26A	60	2,362	T-540	3/4”	19
		13-16	P2-570	2.236	2.598	56.80	66.00	RR27A	60	2,362	T-570	3/4”	19
2-3/4”	69.8	7-11	P2-600	2.354	2.716	59.80	69.00	RR28A	60	2,362	T-570	3/4”	19
3”	76.2	7-11	P2-650	2.551	2.952	64.80	74.00	RR29A	60	2,362	T-650	3/4”	19
		13-15	P2-680	2.669	3.070	67.80	78.00	RR30A	60	2,362	T-720	1”	25.4
3-1/4”	82.55	7-12	P2-720	2,834	3,228	72,00	82,00	RR31A	60	2,362	T-720	1”	25,4
		13-16	P2-770	3,030	3,430	77,00	87,00	RR32A	60	2,362	T-770	1”	25,4
3-1/2”	88.9	10-16	P2-820	3,228	3,622	82,00	92,00	RR33A	60	2,362	T-820	1”	25,4
3-3/4”	95.25	7-12	P2-860	3,385	3,779	86,00	96,00	RR34A	60	2,362	T-860	1”	25,4
4”	101.6	8-12	P2-900	3,543	4,015	90,00	102,00	RR34A	60	2,362	T-900	1”	25,4
		13-16	P2-960	3,779	4,409	96,00	108,00	RR35A	60	2,362	T-960	1”	25,4

P2 • 80 . :
P2-420 – 60
P2-420/80 – 80
P2-420/80+3 – 80 3”

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OD				INCH		MM						
INCH	MM	BWG								•	INCH	MM
2	50,8	10-14	FTKS-508	1,653	41,99	1,889	47,98	RR23RK11	TF-42	TFKK-42	3/4	19
2-1/2	63,5	10-14	FTKS-635	2,125	53,98	2,440	61,98	RR25RK14	TF-54	TFKK-54	3/4	19
3	76,2	10-14	FTKS-762	2,559	65,00	2,952	74,98	RR29RK17	TF-65	TFKK-65	3/4	19

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OD				INCH		MM						
INCH	MM	BWG								•	•	MM
2	50,8	10-14	FTPZ-508	1,653	1,889	41,99	47,98	RR23	TK-42	TKK-42	3/4	19
2-1/2	63,5	10-14	FTPZ-635	2,125	2,440	53,98	61,98	RR25	TK-54	TKK-54	3/4	19
3	76,2	10-14	FTPZ-762	2,559	2,952	65,00	74,98	RR29	TK-65	TKK-65	3/4	19

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OD				INCH		MM			•	•			
INCH	MM	BWG										INCH	MM
2	50,8	10	41633-00	1,700	1,907	43,2	48,4	R-42811	BR-41631-10	P-41701-10	M-42157	3/4	19
		11	41633-00	1,700	1,907	43,2	48,4	R-42811	BR-41631-11	P-41701-11	M-42157	3/4	19
		12	41633-00	1,700	1,907	43,2	48,4	R-42811	BR-41631-12	P-41701-12	M-42157	3/4	19
		13	41633-00	1,700	1,907	43,2	48,4	R-42811	BR-41631-13	P-41701-13	M-42157	3/4	19
2-1/2	63,5	10	41634-00	2,200	2,460	55,9	62,6	R-41673	BR-41651-10	P-41702-10	M-42158	3/4	19
		11	41634-00	2,200	2,460	55,9	62,6	R-41673	BR-41651-11	P-41702-11	M-42158	3/4	19
		12	41634-00	2,200	2,460	55,9	62,6	R-41673	BR-41651-12	P-41702-12	M-42158	3/4	19
		13	41634-00	2,200	2,460	55,9	62,6	R-41673	BR-41651-13	P-41702-13	M-42158	3/4	19
3	76,2	10	41359-00	2,700	2,890	68,6	75,7	R-41676	BR-41666-10	P-41703-10	M-42159	1	25,4
		11	41359-00	2,700	2,890	68,6	75,7	R-41676	BR-41666-11	P-41703-11	M-42159	1	25,4
		12	41359-00	2,700	2,890	68,6	75,7	R-41676	BR-41666-12	P-41703-12	M-42159	1	25,4

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OD			ID												
			INCH		MM			INCH		MM					
INCH	MM	BWG												INCH	MM
1/2	12,70	16-17	0,370	0,384	9,40	9,76	CBTE-10	0,352	0,435	8,94	11,05	MS-22	RS-13	3/8	9,52
		18-19	0,402	0,416	10,22	10,56	CBTE-11	0,382	0,465	9,70	11,81	MS-23	RS-13	3/8	9,52
5/8	15,88	14	0,459	0,459	11,65	11,65	CBTE-13	0,438	0,521	11,12	13,23	MS-24	RS-14	3/8	9,52
		15-17	0,481	0,509	12,21	12,93	CBTE-15	0,462	0,566	11,73	14,37	MS-25	RS-15	3/8	9,52
		18-19	0,527	0,541	13,39	13,73	CBTE-17	0,490	0,620	12,44	15,74	MS-26	RS-15	3/8	9,52
3/4	19,05	10	0,482	0,482	12,25	12,25	CBTE-15	0,462	0,566	11,73	14,37	MS-25	RS-15	3/8	9,52
		11-12	0,510	0,532	12,95	13,51	CBTE-17	0,490	0,620	12,44	15,74	MS-26	RS-15	3/8	9,52
		13-15	0,560	0,606	14,23	15,39	CBTE-19	0,538	0,688	13,66	17,47	MS-26	RS-16	3/8	9,52
		16-17	0,620	0,634	15,75	16,11	CBTE-21	0,596	0,752	15,13	19,10	MS-27	RS-17	3/8	9,52
		18-19	0,652	0,916	16,57	23,26	CBTE-22	0,620	0,776	15,75	19,71	MS-27	RS-18	3/8	9,52
7/8	22,22	11	0,635	0,635	16,12	16,12	CBTE-21	0,596	0,752	15,13	19,10	MS-27	RS-17	3/8	9,52
		12	0,657	0,657	16,68	16,68	CBTE-22	0,620	0,776	15,75	19,71	MS-27	RS-18	3/8	9,52
		13-14	0,685	0,709	17,40	18,00	CBTE-23	0,650	0,806	16,51	20,47	MS-27	RS-19	3/8	9,52
		15-17	0,731	0,759	18,56	19,28	CBTE-24	0,710	0,866	18,03	21,99	MS-28	RS-19	1/2	12,70
1	25,40	9	0,704	0,704	17,88	17,88	CBTE-23	0,650	0,806	16,51	20,47	MS-27	RS-19	3/8	9,52
		10-11	0,732	0,760	18,60	19,30	CBTE-24	0,710	0,866	18,03	21,99	MS-28	RS-19	1/2	12,70
		12-13	0,782	0,810	19,86	20,58	CBTE-25	0,760	0,916	19,30	23,26	MS-28	RS-20	1/2	12,70
		14-16	0,834	0,870	21,18	22,10	CBTE-26	0,812	0,968	20,62	24,58	MS-28	RS-21	1/2	12,70
		17-18	0,884	0,902	22,46	22,92	CBTE-27	0,861	1,018	21,88	25,85	MS-28	RS-22	1/2	12,70
1 1/8	28,58	12	0,908	0,908	23,06	23,06	CBTE-27	0,862	1,018	21,89	25,85	MS-28	RS-22	1/2	12,70
		13-17	0,937	1,008	23,80	25,60	CBTE-29	0,890	1,173	22,60	29,80	MS-29	RS-24	1/2	12,70
1 1/4	31,75	9-12	0,949	1,028	24,10	26,10	CBTE-29	0,890	1,173	22,60	29,80	MS-29	RS-24	1/2	12,70
		13-16	1,058	1,118	26,88	28,40	CBTE-30	1,016	1,291	25,80	32,80	MS-29	RS-25	1/2	12,70
1 3/8	34,93	13	1,185	1,185	30,10	30,10	CBTE-31	1,150	1,398	29,20	35,50	MS-29	RS-26	1/2	12,70
1 1/2	38,10	11-12	1,260	1,280	32,00	32,50	CBTE-31	1,150	1,398	29,20	35,50	MS-29	RS-26	1/2	12,70
1 1/2	38,10	13-16	1,310	1,370	33,28	34,80	CBTE-32	1,274	1,524	32,35	38,70	MS-30	RS-26	3/4	19,05
1 5/8	41,28	11-13	1,385	1,435	35,17	36,45	CBTE-33	1,336	1,586	33,93	40,28	MS-30	RS-27	3/4	19,05
1 3/4	44,45	11-13	1,510	1,560	38,35	39,63	CBTE-36	1,462	1,712	37,13	43,48	MS-30	RS-28	3/4	19,05
1 7/8	47,63	11-13	1,635	1,685	41,52	42,80	CBTE-40	1,600	1,850	40,64	46,99	MS-31	RS-29	3/4	19,05
2	50,80	11-13	1,760	1,810	44,70	45,98	CBTE-44	1,724	1,974	43,78	50,14	MS-31	RS-30	3/4	19,05
2 1/8	53,98	11-13	1,885	1,935	47,87	49,15	CBTE-52	1,850	2,100	46,99	53,34	MS-31	RS-31	3/4	19,05
2 1/4	57,15	11-13	2,008	2,058	51,00	52,28	CBTE-56	1,980	2,230	50,28	56,64	MS-32	RS-31	1	25,40
2 1/2	63,50	11-13	2,260	2,310	57,40	58,68	CBTE-65	2,230	2,480	56,64	63,00	MS-32	RS-32	1	25,40
2 3/4	69,85	11-13	2,510	2,560	63,75	65,03	CBTE-66	2,480	2,730	63,00	69,35	MS-32	RS-33	1	25,40
3	76,20	10-13	2,732	2,810	69,40	71,38	CBTE-68	2,690	3,023	68,33	76,78	MS-33	RS-33	1	25,40
3 1/4	82,55	10-13	2,984	3,062	75,80	77,78	CBTE-70	2,940	3,273	74,67	83,13	MS-33	RS-34	1	25,40
3 1/2	88,90	10-13	3,232	3,310	82,10	84,08	CBTE-80	3,190	3,523	81,02	89,48	MS-33	RS-35	1	25,40
3 3/4	95,25	9-13	3,454	3,560	87,73	90,43	CBTE-84	3,412	3,745	86,66	95,12	MS-35	RS-34	1	25,40
4	101,60	9-13	3,704	3,810	94,08	96,78	CBTE-90	3,661	3,995	93,00	101,47	MS-35	RS-35	1	25,40
4 1/2	114,30	9-13	4,204	4,310	106,78	109,48	CBTE-100	4,161	4,449	105,70	113,00	MS-35	RS-36	1	25,40

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	INCH	MM	RPM	IN.LBS	NM	IN.LBS	NM	LBS	KG	INCH	MM	CFM	L/MIN		INC.	OPT.
K20-550	1/2"	12,7	550	0,166	0,226	6,25	8,47	2,64	1,2	8,62	219	17	480	3/8"	1/4"	3/8"
K20-1800	3/8"	9,5	1800	0,166	0,226	2,25	3,05	2,42	1,1	8,07	205	17	480	3/8"	1/4"	3/8"
K20-2500	1/4"	6,3	2500	0,166	0,226	0,66	0,9	2,29	1,1	8,07	205	17	480	3/8"	1/4"	3/8"

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	INCH	MM	RPM	IN.LBS	NM	IN.LBS	NM	LBS	KG	INCH	MM	CFM	L/MIN		STD.	OPT.
K50-1250	3/4”	19	1250	14,00	1,58	108	12,20	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”
AUTO K50-1250	3/4”	19	1250	14,00	1,58	108	12,20	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”
K50-600	1”	25,4	485	22,00	2,49	193	21,81	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”
AUTO K50-600	1”	25,4	485	22,00	2,49	193	21,81	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”
K50-400	1 1/4”	31,7	400	44,15	5,00	318	36,00	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”
AUTO K50-400	1 1/4”	31,7	400	44,15	5,00	318	36,00	10,5	4,76	12 1/4”	311	60	1700	3/8”	3/8”	1/2”

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	INCH	MM	RPM	IN.LBS	NM	IN.LBS	NM	LBS	KG	INCH	MM	CFM	L/MIN		STD.	OPT.
K60-900	1-1/2"	38,1	756	4,7	6,4	30,7	41,6	27	12,25	18	457	1980	70	1/2"	3/8, 1/2	3/4, 1
AUTO K60-900	1-1/2"	38,1	756	4,7	6,4	30,7	41,6	27	12,25	18	457	1980	70	1/2"	3/8, 1/2	3/4, 1
K60-400	2"	50,8	400	10,0	12,8	61,0	82,5	27	12,25	18	457	1980	70	3/4"	3/4, 1	3/8, 1/2
AUTO K60-400	2"	50,8	400	10,0	12,8	61,0	82,5	27	12,25	18	457	1980	70	3/4"	3/4, 1	3/8, 1/2
K60-250	2-1/2"	63,5	220	25,0	33,9	100,0	135,5	27	12,25	18	457	1980	70	3/4"	3/4, 1	3/8, 1/2
AUTO K60-250	2-1/2"	63,5	220	25,0	33,9	100,0	135,5	27	12,25	18	457	1980	70	3/4"	3/4, 1	3/8, 1/2

K60 & AUTO K60

Auto K60 Flexpande

K60

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	OD		•		.	.											
	MM	INCH	RPM	NM	FT. LBS	NM	FT.LBS	KG	LBS	MM	INCH	MM	INCH	MM	INCH		INC.	OPT.
K72-RT-90	101,6	4”	90	200	150	410	305	6,7	14,75	550	21,7	70	2,75	37	1,5	3/4”	1", 3/4”	-
K72-LT-90	101,6	4”	90	200	150	410	305	6,7	14,75	550	21,7	70	2,75	37	1,5	3/4”	1", 3/4”	-
K73-RT-190	63,5	2,5”	190	95	70	200	140	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K73-LT-190	63,5	2,5”	190	95	70	200	140	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K73-RT-280	57,1	2,25”	280	60	44	140	104	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K73-LT-280	57,1	2,25”	280	60	44	140	104	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K73-RT-375	50,8	2”	375	40	30	110	82	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K73-LT-375	50,8	2”	375	40	30	110	82	5,8	13,00	530	20,1	65	2,60	28	1,1	3/4”	3/4”	1/2”
K75-RT-30	152,0	6"	30	120	90	1230	922	7,5	16,50	620	24,0	70	2,75	37	1,5	1"	1"	1-1/4"
K75-LT-30	152,0	6"	30	120	90	1230	922	7,5	16,50	620	24,0	70	2,75	37	1,5	1"	1"	1-1/4"
K75-RT-60	127,0	5"	60	60	45	640	480	6,5	14,3	620	24,0	70	2,75	37	1,5	1"	1"	1-1/4"
K75-LT-60	127,0	5"	60	60	45	640	480	6,5	14,3	620	24,0	70	2,75	37	1,5	1"	1"	1-1/4"

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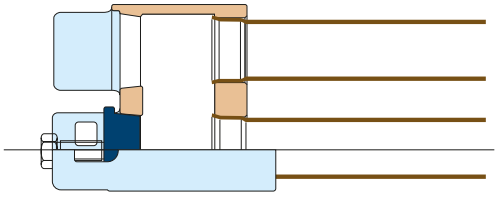

	OD		•		.	.											
	MM	INCH	RPM	NM	FT.LBS	NM	FT.LBS	KG	LBS	MM	INCH	MM	INCH	MM	INCH		INC.	OPT.
K77-RT-25	203,2	8”	25	710	532	1455	1075	10	14,75	552	21,73	190	4,826	39	1,535	1"	1", 1-1/4"	1-1/2"
K77-LT-25	203,2	8”	25	710	532	1455	1075	10	14,75	552	21,73	190	4,826	39	1,535	1"	1", 1-1/4"	1-1/2"
K77-RT-8	203,2	8”	8	315	232	4300	3172	15	14,75	552	21,73	190	4,826	39	1,535	1"	1", 1-1/4"	1-1/2"
K77-LT-8	203,2	8”	8	315	232	4300	3172	15	14,75	552	21,73	190	4,826	39	1,535	1"	1", 1-1/4"	1-1/2"

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MULTIPLEEXPAND AP

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ME-AP-L1800-S2

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	INCH	MM	RPM	FT.LBS	NM	FT.LBS	NM	CFM	L/MIN	LBS	KG	INCH	MM	INCH	MM	INCH	MM
L20-550	1/2	12,70	550	0,166	0,225	6,25	8,474	17	480	2,64	1,20	9,409	239,0	1/4	6,35	3/8	9,53
L20-1800	3/8	9,53	1800	0,166	0,225	2,25	3,051	17	480	2,42	1,10	8,858	225,0	1/4	6,35	3/8	9,53
L20-2500	1/4	6,35	2500	0,166	0,225	0,66	0,895	17	480	2,29	1,04	8,858	225,0	1/4	6,35	3/8	9,53
L30-1000	3/4	19,05	1000	1,180	1,580	11,20	15,5	60	1700	11,0	4,95	13,700	350,0	3/8	9,5	1/2"	12,70

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ME-NA-L1800-S4

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	INCH	MM	RPM	FT.LB$ NM	FT.LB$ NM	CFM	L/MIN	LBS	KG	INCH	MM	INCH	MM	INCH	MM
L20-550	1/2	12,70	550	0,166 0,225	6,25 8,474	17	480	2,64	1,20	9,409	239,0	1/4	6,35	3/8	9,53
L20-1800	3/8	9,53	1800	0,166 0,225	2,25 3,051	17	480	2,42	1,10	8,858	225,0	1/4	6,35	3/8	9,53
L20-2500	1/4	6,35	2500	0,166 0,225	0,66 0,895	17	480	2,29	1,04	8,858	225,0	1/4	6,35	3/8	9,53

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FLEXHOLDER - -Ž ‹Š

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FLEXHolder •

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KRAIS

AK50	EB-1	E-1
	TES100	TES100
S1-S5 - ( )	B1-B5 - ( )	
TES1000	TES1000	

TES MINI

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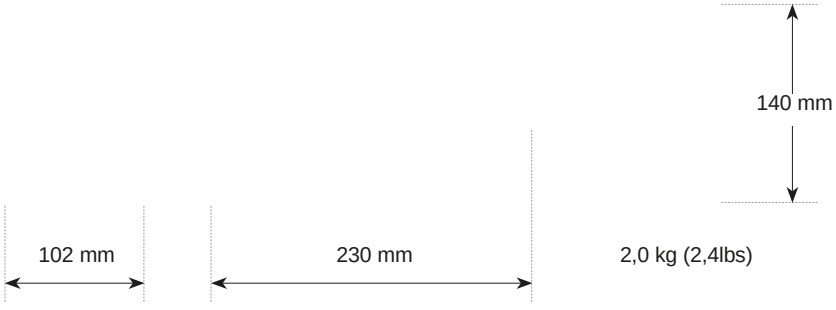

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TES Mini

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		*		•	.		NM		FT LBS			
		MIN	MAX				MIN	MAX	MIN	MAX	KG	LBS
	HT-0	1/4	1/2	2300	1700	460 W	0,70	10,00	0,50	7,40	1,2	2,4
	ES-0	5/8	1 1/4	680	450	1150 W	12,00	45,00	8,85	33,00	3,2	7,0
	ES-2	5/8	1 1/8	650 1200	430 760	1150 W	8,00	43,00	6,00	32,00	3,2	7,0
	DU-0	5/8	1	628 2100	450 1550	650 W	3,00	42,00	2,21	30,50	2,0	4,4
	DU-1	3/4	2	150 250 445 720	120 219 380 650	2000 W	12,00	250,00	8,85	185,00	8,6	17,6
	K90-E-90	2	5	90	81	1150 W	70,00	510,00	51,63	376,16	10,0	22,0
	K90-E-190	1 1/2	3	142	129	1150 W	50,00	260,00	36,88	191,77	10,0	22,0
	K90-E-280	1 1/4	2 1/2	274	250	1150 W	40,00	190,00	29,50	140,14	10,0	22,0

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TES-300(

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USB-

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•	65536
•• • (• -)	800 x 480
€ ,	LED
€	Cortex A8 600MHz
ƒ „ … †,	4 wires resistive type
€	128 MB Flash
‡„ „	128 MB
USB- •ˆ	USB 2.0 – software updates, dump the log ‰les
CE	Complies with EN 55022:2006, Class A, EN 61000-3-2:2006, EN 61000-3-3:1995 + A1:2001 + A2:2005 standards
UL	E248297
Š ,	IP65 front panel
ƒ „	-20°~60°C (-4°~140°F)
• ‹ „	0°~50°C (32°~122°F)
-	10-90% RH (non-condense)

- USB- … “ TES

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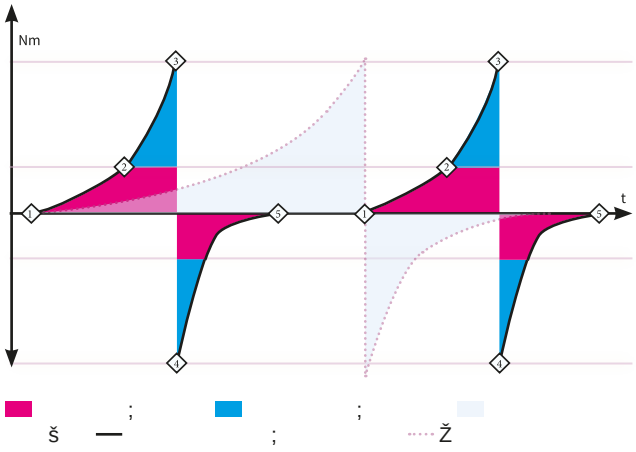

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TES3000 B2

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				•	TES 3000			
					NM		FT.LB	
	S3000		5,0 kg	3000	0,2	2,5	0,10	1,80
	S6000		5,0 kg	6000	0,2	2,5	0,10	1,80
	S5		5,0 kg	1662	0,4	8,6	0,20	6,30
	S4		5,0 kg	1500	0,5	9,5	0,30	7,00
	S3		5,0 kg	1091	0,6	13,0	0,40	9,50
	S2		5,0 kg	800	0,9	18,0	0,60	13,20
	S1	1/230V	5,0 kg	600	1,2	24,0	0,80	17,70
	B5		8,0 kg	1453	1,8	27,0	1,30	19,90
	B4		8,0 kg	1000	2,6	39,0	1,90	28,70
	B3		8,0 kg	736	3,5	53,0	2,50	39,00
	B2		8,0 kg	400	6,5	92,5	4,70	68,20
	B1		8,0 kg	300	9,0	123,0	6,60	90,70
	G1455		9,0 kg	1453	2,3	70	1,6	51,6
	G1000	3/400V	9,0 kg	1000	3,4	102	2,5	75,2
	G400		9,5 kg	400	7,5	240	5,5	177

TES-3000 •

• G-1000,
G-400 G-1450

FLEXHOLDER

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FlexHolder.
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TES3000 AND G1450

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			•	TES 3000			
				NM		FT.LB	
S3000	1/230V	5,0 kg	3000	0,2	2,5	0,10	1,80
S6000		5,0 kg	6000	0,2	2,5	0,10	1,80
S5		5,0 kg	1662	0,4	8,6	0,20	6,30
S4		5,0 kg	1500	0,5	9,5	0,30	7,00
S3		5,0 kg	1091	0,6	13,0	0,40	9,50
S2		5,0 kg	800	0,9	18,0	0,60	13,20
S1		5,0 kg	600	1,2	24,0	0,80	17,70
G1455	3/400V	9,0 kg	1453	2,3	70	1,6	51,6
G1000		9,0 kg	1000	3,4	102	2,5	75,2
G400		9,5 kg	400	7,5	240	5,5	177

SWIFTROLL X

Robot-
Setup , ,
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FANUC, TES3000
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Fanuc R30iB. SwiftRoll
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SwiftRoll X1
HMI
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SwiftRoll X1
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6	1200 mm	20 Kg	1000 Rpm	102 Nm	1000 Rpm	3 kW
	47,00”	44 Lbs		75 Ft.Lbs		

TES3000 -

TES3000 — ‡ • •
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SWIFTROLL XS

SwiftRoll Xs -
SwiftRoll X1.
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HMI CUSTOM

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SWIFTROLL

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INCH	MM				•
3/8”	9,50	TEF-375	16 – 20	TEF-376	TEF-376-SS
1/2”	12,7	TEF-500	16 – 20	TEF-506	TEF-506-SS
5/8”	15,8	TEF-625	14 – 18	TEF-626	TEF-626-SS
3/4”	19,0	TEF-750	10 – 18	TEF-756	TEF-756-SS
7/8”	22,2	TEF-875	14 – 18	TEF-876	TEF-876-SS
1”	25,4	TEF-1000	10 – 18	TEF-1006	TEF-1006-SS
1-1/4”	31,7	TEF-1250	10 – 18	TEF-1256	TEF-1256-SS
1-1/2”	38,1	TEF-1500	10 – 18	TEF-1506	TEF-1506-SS
2”	50,8	TEF-2000	10 – 18	TEF-2006	TEF-2006-SS
2-1/2”	63,5	TEF-2500	10 – 18	TEF-2506	TEF-2506-SS

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JGS :
3/8 ”(9,52) 4” (101,6),
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	[inch]	1/8 x 1/4 x 1/8”	1/8 x 3/8 x 1/8”	1/8 x 1/8 x 1/8”
JGS-375	3/8	ST-3703-S	ST-3703	ST-3703-SPEC
JGS-500	1/2	ST-5003-S	ST-5003	ST-5003-SPEC
JGS-625	5/8	ST-6203-S	ST-6203	ST-6203-SPEC
JGS-750	3/4	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-875	7/8	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-1000	1	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-1250	1 1/4	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-1500	1 1/2	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-2000	2	ST-7503-S	ST-7503	ST-7503-SPEC
JGS-2500	2 1/2	ST-7503-S	ST-7503	ST-7503-SPEC

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	[mm]	3 x 6 x 3 mm	3 x 9 x 2 mm	3 x 3 x 3 mm
JGS-375-10	10,00	GS-106	GS-109	GS-103
JGS-500-12	12,00	GS-206	GS-209	GS-203
JGS-625-16	16,00	GS-306	GS-309	GS-303
JGS-750-20	20,00	GS-406	GS-409	GS-403
JGS-875-22	22,00	GS-406	GS-409	GS-403
JGS-1000-25	25,00	GS-406	GS-409	GS-403
JGS-1250-32	32,00	GS-406	GS-409	GS-403
JGS-1500-38	38,00	GS-406	GS-409	GS-403
JGS-2000-51	51,00	GS-406	GS-409	GS-403

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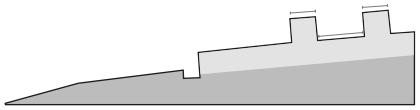

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Up to 101,6 mm	100 Rpm	1,3 Hp	140 Nm
Up to 4”			105 Ft.Lbs

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55 cfm	1,3 m3/min	2,32”	59 mm	13,1”	335 mm	17,5 Lbs	8 kg

MWR-JGS

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MWR-JGS

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MWR-JGS E

MWR-JGS E -

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• : 115 RPM

‹• : 750 W

, • : 368 Nm (280 Ft.Lbs)

: 25 mm (1”)

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1/2 ” 4” .

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		1/8X1/4X1/8”	3X6X3 MM			
1/2”	JGS-MWR-127	ST-5003-S	GS-206	ST-5011	GS-MWR-127	-
5/8”	JGS-MWR-158	ST-6203-S	GS-306	ST-6211	GS-MWR-158	-
16 mm	JGS-MWR-160	ST-6203-S	GS-306	ST-6211	GS-MWR-160	-
3/4”	JGS-MWR-190-R	ST-7503-S	GS-406	ST-7511	GS-MWR-190-R	STR-3-55
20 mm	JGS-MWR-200-R	ST-7503-S	GS-406	ST-7511	GS-MWR-200-R	STR-4-55
22 mm	JGS-MWR-220-R	ST-7503-S	GS-406	ST-7511	GS-MWR-220-R	STR-4-55
7/8”	JGS-MWR-222-R	ST-7503-S	GS-406	ST-7511	GS-MWR-222-R	STR-5-55
25 mm	JGS-MWR-250-R	ST-7503-S	GS-406	ST-7511	GS-MWR-250-R	STR-5-55
1”	JGS-MWR-254-R	ST-7503-S	GS-406	ST-7511	GS-MWR-254-R	STR-5-55
1-1/8”	JGS-MWR-285-R	ST-7503-S	GS-406	ST-7511	GS-MWR-285-R	STR-5-55
1-1/4”	JGS-MWR-317-R	ST-7503-S	GS-406	ST-7511	GS-MWR-317-R	STR-5-55
1-1/2”	JGS-MWR-381-R	ST-7503-S	GS-406	ST-7511	GS-MWR-381-R	STR-5-55
1-3/4”	JGS-MWR-444-R	ST-7503-S	GS-406	ST-7511	GS-MWR-444-R	STR-5-55
2”	JGS-MWR-508-R	ST-7503-S	GS-406	ST-7511	GS-MWR-508-R	STR-5-55
51”	JGS-MWR-510-R	ST-7503-S	GS-406	ST-7511	GS-MWR-510-R	STR-5-55
2-1/4”	JGS-MWR-751-R	ST-7503-S	GS-406	ST-7511	GS-MWR-751-R	STR-5-55
2-1/2”	JGS-MWR-635-R	ST-7503-S	GS-406	ST-7511	GS-MWR-635-R	STR-5-55
2-3/4” *	JGS-MWR-698-R	ST-7503-S	GS-406	ST-7511	GS-MWR-698-R	STR-5-55
3” *	JGS-MWR-762-R	ST-7503-S	GS-406	ST-7511	GS-MWR-762-R	STR-5-55
4” *	JGS-MWR-1002-R	ST-7503-S	GS-406	ST-7511	GS-MWR-1002-R	STR-5-55

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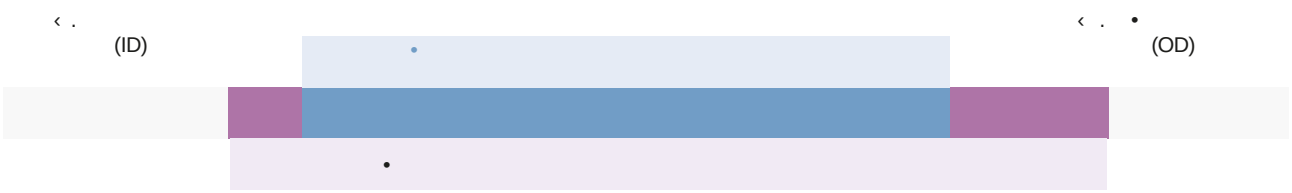

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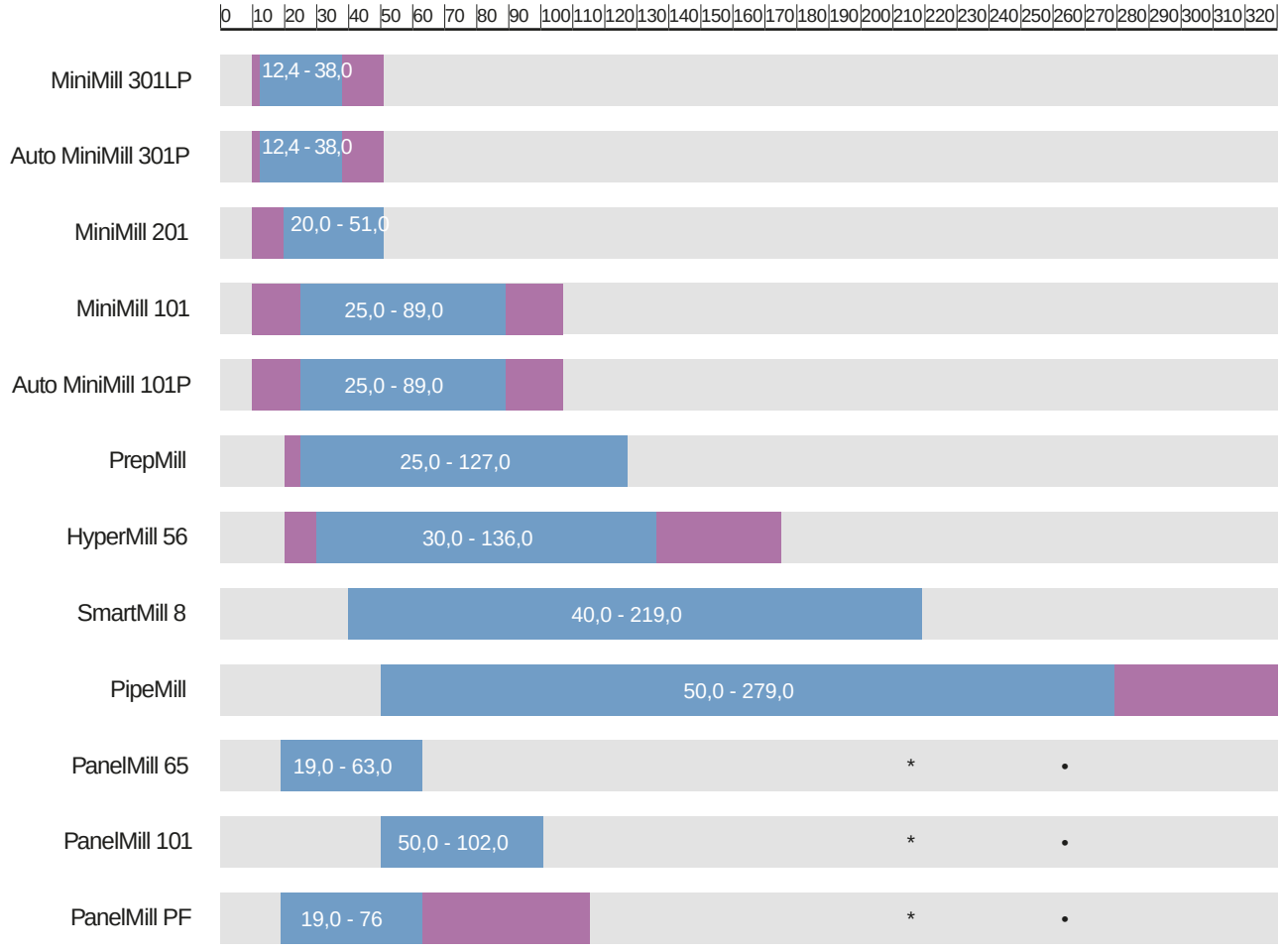

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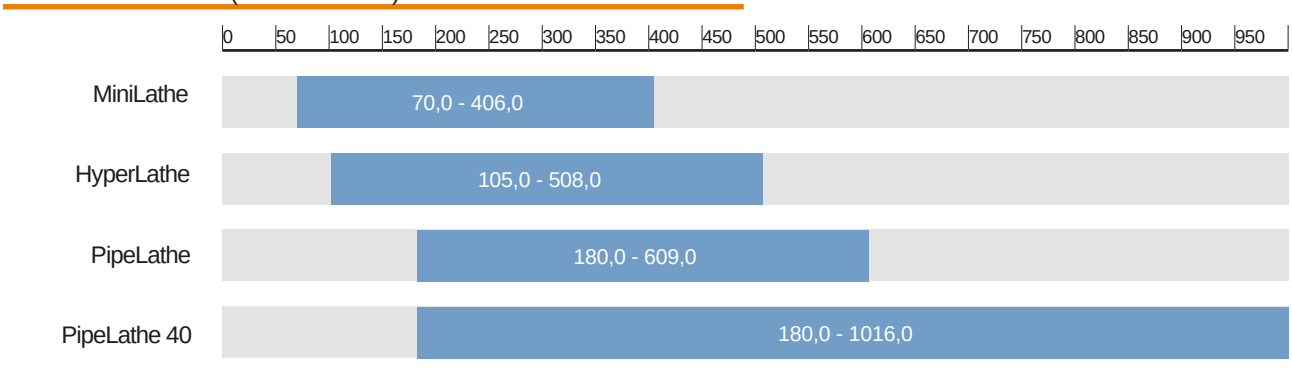

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: MINIMILL 101, MINIMILL 200, MINIMILL 300LP AUTO MINIMILL MINISHAFT.
• • MiniMill , „ ,
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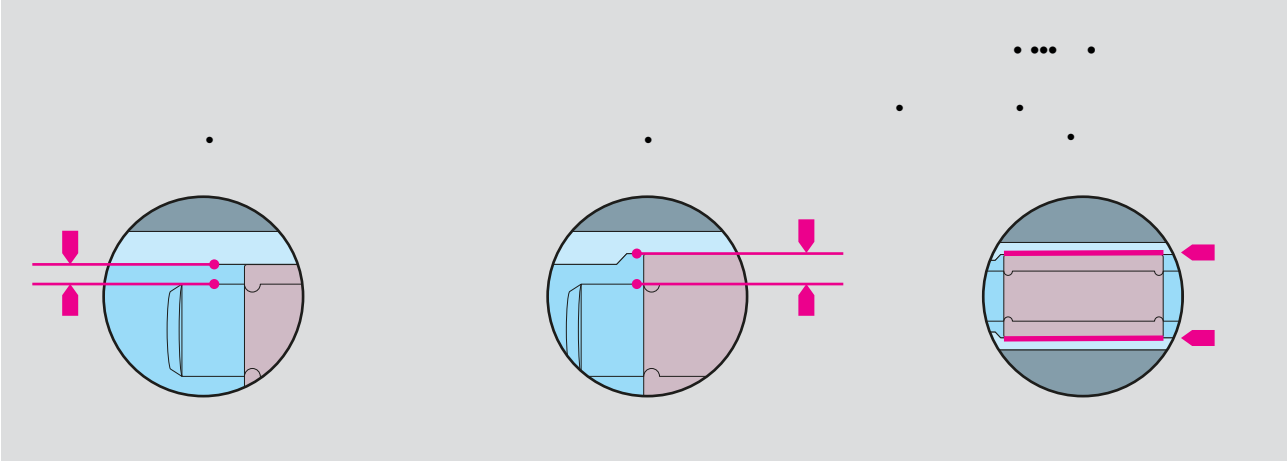

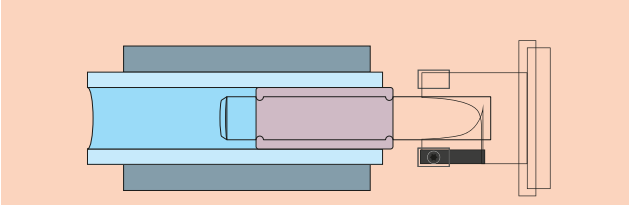

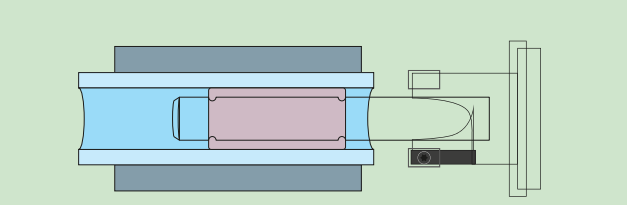

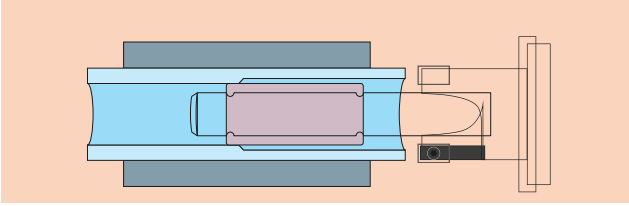

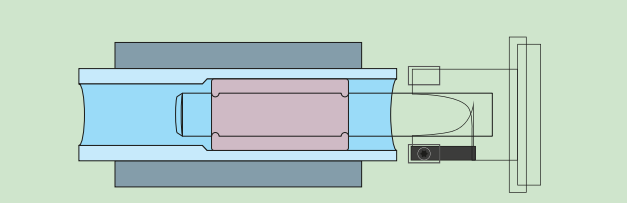

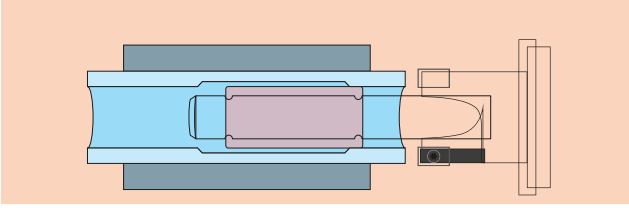

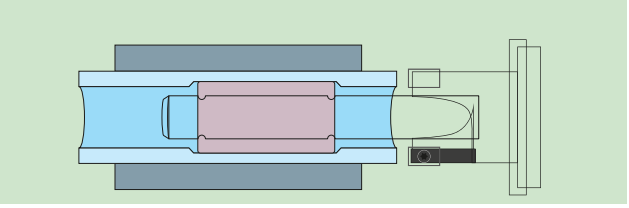

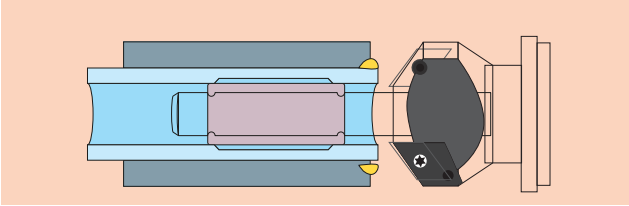

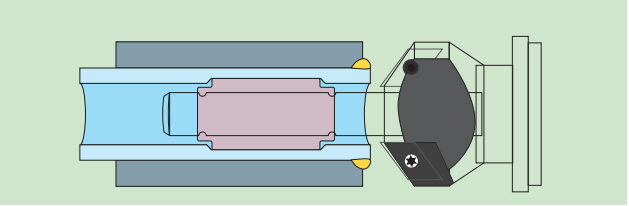

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MiniMill .
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MICROSHAFT

		INCH	
800 #151	9,00	0,354	O-7
801 #151	10,00	0,394	DW-8,5
805 #151	11,00	0,453	DW-10

MICROSHAFT

• •		• •		
MIN		MIN		
10,00	11,00	0,394	0,433	301 #36
11,00	12,00	0,433	0,472	303 #36
12,00	13,00	0,472	0,512	305 #36
13,00	14,00	0,512	0,551	307 #36
14,00	15,00	0,551	0,591	309 #36

MINISHAFT

OD	BWG			INCH	
3/4"	11	901 #151	12,40	0,492	DW-11
	11	911 #151	12,60	0,496	DW-11
	12	912 #151	13,20	0,519	DW-11
	13	905 #151	13,90	0,547	DW-12,5
	14	914 #151	14,50	0,570	DW-12,5
	15	9151 #151	15,10	0,594	DW-12,5
	16	916 #151	15,50	0,610	DW-12,5
	17	917 #151	15,70	0,622	DW-12,5
	18	918 #151	16,30	0,641	DW-15,5
	20	909 #151	16,80	0,661	DW-15,5
7/8"	10	9151 #151	15,10	0,594	DW-12,5
	11	917 #151	15,70	0,622	DW-12,5
	12	922 #151	16,40	0,645	DW-15,5
	13	923 #151	17,10	0,673	DW-15,5
	14	924 #151	17,70	0,696	DW-15,5
	15	925 #151	18,30	0,700	DW-15,5
	16	926 #151	18,60	0,732	DW-15,5
	18	928 #151	19,50	0,767	DW-15,5
1"	8	909 #151	16,80	0,661	DW-15,5
	9	938 #151	17,50	0,688	DW-15,5
	10	925 #151	18,30	0,700	DW-15,5
	11	931 #151	19,00	0,748	O-16
	12	932 #151	19,60	0,771	O-16
	13	915 #151	20,00	0,787	O-17
	14	934 #151	20,90	0,822	O-17
	16	936 #151	21,80	0,858	O-17
	18	938 #151	22,60	0,889	O-7

MINISHAFT

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MIN		MIN		
12,40	14,50	0,488	0,571	201 #36
13,90	16,00	0,547	0,630	203 #36
15,90	18,00	0,626	0,709	205 #36
16,90	19,00	0,665	0,748	207 #36
18,90	21,00	0,744	0,827	209 #36
19,90	22,00	0,783	0,866	211 #36
20,90	23,00	0,823	0,906	213 #36
21,90	24,00	0,862	0,944	214 #36
23,60	25,60	0,929	1,008	215 #36
25,20	27,20	0,992	1,071	217 #36
26,80	28,80	1,055	1,134	219 #36
28,40	30,40	1,118	1,197	221 #36
30,00	32,00	1,181	1,260	223 #36
31,60	33,60	1,244	1,323	225 #36
33,20	35,20	1,307	1,386	227 #36
34,80	36,80	1,370	1,449	229 #36
36,40	38,40	1,433	1,512	231 #36
38,00	40,00	1,496	1,575	233 #36
39,60	41,60	1,559	1,638	235 #36
41,20	43,20	1,622	1,701	237 #36
42,80	44,80	1,685	1,764	239 #36
44,40	46,40	1,748	1,827	241 #36
46,00	48,00	1,811	1,890	243 #36

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901, 905 909‹ # 151.

PREPMIL

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- PrepMill
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25 122
• 116 .

SHAFT25
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116 (4,56”)
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•ID OD•		•ID•		•ID OD•	•ID•
25 – 127		25 – 122		20 – 127	20 – 122
1 – 5”		1,0 – 4,8”		0,787 – 5”	0,787 – 4,8”
				•	
25	1”	1,3 hp		120 rpm	140 Nm / 105 Ft.lbs
• •					
55 cfm	1,3 m³/min	2,59”	66	14,5”	370 / 20,5 Lbs / 9,5 kg

PREPMILL-E

PrepMill-E -
PrepMill. -
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Makita 3-

KRAIS
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• ... 115 RPM
‹ • ..... 750 W
, • .... 368 Nm (280 Ft.Lbs)
..... 25 (1”)

PrepMill 66
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66 (2,59”)
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88 (3,46”)
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OBPM
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PRRMBH
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STWRPM
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TFPM
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HSS 6%
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SHAFT20
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MiniMill (
1-1/2”).

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SAV-500
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SHAFT25

		INCH			.		
MIN		MIN					
25	30	0,984	1,181	NS-1	-	SP-24	1
30	35	1,181	1,378	NS-2	-	SP-24	1
35	40	1,378	1,575	NS-3	-	SP-25	2
40	45	1,575	1,772	NS-4	-	SP-25	2
45	50	1,772	1,969	NS-5	-	SP-25	2
50	55	1,969	2,165	NS-6	-	SP-25	2
55	60	2,165	2,362	NS-7	-	SP-25	2
60	65	2,362	2,559	NS-8	-	SP-25	2
62	67	2,441	2,638	NS-5	NS-10	SP-25	2
67	72	2,638	2,835	NS-6	NS-10	SP-25	2
72	77	2,835	3,031	NS-7	NS-10	SP-25	2
77	82	3,031	3,228	NS-8	NS-10	SP-25	2
82	87	3,228	3,425	NS-5	NS-20	SP-25	2
87	92	3,425	3,622	NS-6	NS-20	SP-25	2
92	97	3,622	3,819	NS-7	NS-20	SP-25	2
97	102	3,819	4,016	NS-8	NS-20	SP-25	2
102	107	4,016	4,213	NS-5	NS-30	SP-25	2
107	112	4,213	4,409	NS-6	NS-30	SP-25	2
112	117	4,409	4,606	NS-7	NS-30	SP-25	2
117	122	4,606	4,803	NS-8	NS-30	SP-25	2

SHAFT20 ( )

		INCH			.		
MIN		MIN					
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1

MINIMILL 10

MiniMill 101 - , ,
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20 74 .
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…Š • “ „• , ‚‹ „ ‚‹Š. 52

SHAFT25
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88 (3,46”)
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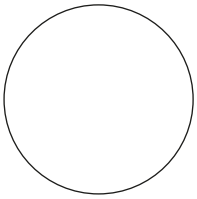

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•ID OD•		•ID•		•ID OD•		•ID•	
25 – 89		25 – 77		10 – 107		10 – 102	
0,984 – 3,504”		0,984 – 3,031”		0,394 – 4,213”		0,394 – 4,016”	
				•			
20	0,787”	1,3 hp		120 rpm		140 Nm	105 Ft.lbs
• •							
55 cfm	1,3 m³/min	2,32”	59	13,1”	335	11,4 Lbs	5,2 kg

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SAV-500
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60 (2,36”)
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106 (4,56”)
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OBMH
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SWROTC
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STWRMH
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• . 104

TFMH
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HSS 6%
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• . 104

MICROSHAFT
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10,0
15,0 .

MINISHAFT
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12,4
48,0 .

MINIMILL 101E

MiniMill 101E

MINIMILL 101. -
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Makita 3-
KRAIS
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• ... 115 RPM
‹ • ..... 750 W
, • .... 366 NM (280 Ft.Lbs)
• ..... 20 (0,787”)

SHAFT25

• •		•INCH•			.		
MIN		MIN					
25	30	0,984	1,181	NS-1	-	SP-24	1
30	35	1,181	1,378	NS-2	-	SP-24	1
35	40	1,378	1,575	NS-3	-	SP-25	2
40	45	1,575	1,772	NS-4	-	SP-25	2
45	50	1,772	1,969	NS-5	-	SP-25	2
50	55	1,969	2,165	NS-6	-	SP-25	2
55	60	2,165	2,362	NS-7	-	SP-25	2
60	65	2,362	2,559	NS-8	-	SP-25	2
62	67	2,441	2,638	NS-5	NS-10	SP-25	2
67	72	2,638	2,835	NS-6	NS-10	SP-25	2
72	77	2,835	3,031	NS-7	NS-10	SP-25	2

• •		•INCH•			.		
MIN		MIN					
77	82	3,031	3,228	NS-8	NS-10	SP-25	2
82	87	3,228	3,425	NS-5	NS-20	SP-25	2
87	92	3,425	3,622	NS-6	NS-20	SP-25	2
92	97	3,622	3,819	NS-7	NS-20	SP-25	2
97	102	3,819	4,016	NS-8	NS-20	SP-25	2
102	107	4,016	4,213	NS-5	NS-30	SP-25	2

SHAFT20 ( )

• •		•INCH•			.		
MIN		MIN					
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1

MINISHAFT
( )

						INCH			
	INCH				MIN		MIN		
901 #151	12,40	0,492	201 #36	12,40	14,50	0,488	0,571	DW-11	
905 #151	13,90	0,547	203 #36	13,90	16,00	0,547	0,630	DW-12,5	
909 #151	16,80	0,661	205 #36	15,90	18,00	0,626	0,709	DW-15,5	
			207 #36	16,90	19,00	0,665	0,748		
			209 #36	18,90	21,00	0,744	0,827		
			211 #36	19,90	22,00	0,783	0,866		
			213 #36	20,90	23,00	0,823	0,906		
			214 #36	21,90	24,00	0,862	0,944		

• Minishaft . 7.

MICROSHAFT
( )

					INCH			
INCH				MIN		MIN		
800 #151	0,354	9,00	301 #36	10,00	11,00	0,394	0,433	O-7
801 #151	0,394	10,00	303 #36	11,00	12,00	0,433	0,472	DW-8,5
805 #151	0,453	11,00	305 #36	12,00	13,00	0,472	0,512	DW-10
			307 #36	13,00	14,00	0,512	0,551	
			309 #36	14,00	15,00	0,551	0,591	

MINIMILL 20

MiniMill 201 - , ,

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SHAFT20
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60 (2,36”)
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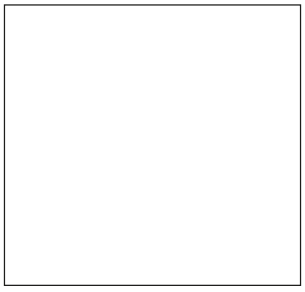
•ID OD•		•ID•		•ID OD•		•ID•	
20 – 51		20 – 48		10 – 51		10 – 48	
0,787 – 2,008”		0,787 – 1,890”		0,394 – 2,008”		0,394 – 1,890”	
				•			
20	0,787”	1,3 hp		200 rpm		72 Nm	53 Ft.lbs
• •							
55 cfm	1,3 m³/min	2,32”	59	13,1”	335	11,4 Lbs	5,2 kg



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88 (3,46”)

OBMH
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SWROTC
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STWRMH
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MICROSHAFT
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9,0
15,0 .

MINISHAFT
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12,4
48,0 .

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SAV-500
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SHAFT20

• •		•INCH•			.		
MIN		MIN					
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1
28	33	1,102	1,299	NS-2	-	SP-19	1
33	38	1,299	1,496	NS-3	-	SP-20	2
38	43	1,496	1,693	NS-4	-	SP-20	2
43	48	1,693	1,890	NS-5	-	SP-20	2

MINISHAFT
( )

	INCH			• •		•INCH•			
				MIN		MIN			
901 #151	12,40	0,492	201 #36	12,40	14,50	0,488	0,571	DW-11	
905 #151	13,90	0,547	203 #36	13,90	16,00	0,547	0,630	DW-12,5	
909 #151	16,80	0,661	205 #36	15,90	18,00	0,626	0,709	DW-15,5	
			207 #36	16,90	19,00	0,665	0,748		
			209 #36	18,90	21,00	0,744	0,827		
			211 #36	19,90	22,00	0,783	0,866		
			213 #36	20,90	23,00	0,823	0,906		
			214 #36	21,90	24,00	0,862	0,944		

• Minishaft . 7.

MINISHAFT
( )

	INCH			• •		•INCH•		
				MIN		MIN		
800 #151	0,354	9,00	301 #36	10,00	11,00	0,394	0,433	O-7
801 #151	0,394	10,00	303 #36	11,00	12,00	0,433	0,472	DW-8,5
805 #151	0,453	11,00	305 #36	12,00	13,00	0,472	0,512	DW-10
			307 #36	13,00	14,00	0,512	0,551	
			309 #36	14,00	15,00	0,551	0,591	

MINIMILL 301L

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HSS 6% . •
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MINISHAFT
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12,4
48,0 .

60 (2,36”)
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•ID OD•		•ID•		•ID OD•		•ID•	
12,4 – 38,0		12,4 – 24,0		10 – 51		10 – 48	
0,488 – 1,496”		0,488 – 0,945”		0,394 – 2,008”		0,394 – 1,890”	
				•			
20	0,787”	1,3 hp		300 rpm		43 Nm	32 Ft.lbs
• •							
55 cfm	1,3 m³/min	2,32”	59	13,1”	335	15,4 Lbs	7 kg

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TFMH
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HSS 6%
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FH
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STWRMH
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MICROSHAFT
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9,0
15,0 .

SHAFT20
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SAV-500
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: MINISHAFT

	INCH			MIN		INCH MIN		
901 #151	12,40	0,492	201 #36	12,40	14,50	0,488	0,571	DW-11
905 #151	13,90	0,547	203 #36	13,90	16,00	0,547	0,630	DW-12,5
909 #151	16,80	0,661	205 #36	15,90	18,00	0,626	0,709	DW-15,5
			207 #36	16,90	19,00	0,665	0,748	
			209 #36	18,90	21,00	0,744	0,827	
			211 #36	19,90	22,00	0,783	0,866	
			213 #36	20,90	23,00	0,823	0,906	
			214 #36	21,90	24,00	0,862	0,944	

• Minishaft . 59.

MICROSHAFT
( )

	INCH			MIN		INCH MIN		
800 #151	0,354	9,00	301 #36	10,00	11,00	0,394	0,433	O-7
801 #151	0,394	10,00	303 #36	11,00	12,00	0,433	0,472	DW-8,5
805 #151	0,453	11,00	305 #36	12,00	13,00	0,472	0,512	DW-10
			307 #36	13,00	14,00	0,512	0,551	
			309 #36	14,00	15,00	0,551	0,591	

SHAFT20
( )

• •		•INCH•			.		
MIN		MIN					
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1
28	33	1,102	1,299	NS-2	-	SP-19	1
33	38	1,299	1,496	NS-3	-	SP-20	2
38	43	1,496	1,693	NS-4	-	SP-20	2
43	48	1,693	1,890	NS-5	-	SP-20	2

HYPERMILL 5

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„ . HyperMill 56 - ,
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SHAFT30
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135 (5,3”)
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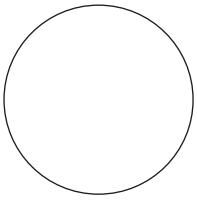

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•ID OD•		•ID•		•ID OD•		•ID•	
30 – 136		30 – 136		20 – 175		20 – 166	
1,181 – 5,354”		0,181 – 4,354”		0,787 – 6,890”		0,787 – 6,535”	
				•			
40	1,6”	1,3 hp		55 rpm		280 Nm	210 Ft.lbs
• •							
55 cfm	1,3 m³/min	3,22”	82	15”	385	19 Lbs	9 kg

HYPERMILL 56E

HyperMill 56E

HyperMill 56 -
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Makita 3-
KRAIS
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• .. 58 /
‹ • ..... 750 W
, • ... 720 Nm (530 Ft.Lbs)
• ..... 40 (1,6”)

116 (4,56”)

175 (6,89”)

HMRBMH

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SHAFT20

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SHAFT25

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SAV-500

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MiniMill (

1-1/2 ”).

SHAFT30

		INCH					
MIN		MIN					
30,0	34,0	1,181	1,339	NS-1		SP-29	1
34,0	39,0	1,339	1,535	NS-2		SP-29	1
39,0	44,0	1,535	1,732	NS-3		SP-30	2
44,0	49,0	1,732	1,929	NS-4		SP-30	2
49,0	54,0	1,929	2,126	NS-5		SP-30	2
54,0	59,0	2,126	2,323	NS-6		SP-30	2
59,0	64,0	2,323	2,520	NS-7		SP-30	2
64,0	69,0	2,520	2,717	NS-8		SP-30	2
66,0	71,0	2,598	2,795	NS-5	NS-10	SP-30	2
71,0	76,0	2,795	2,992	NS-6	NS-10	SP-30	2
76,0	81,0	2,992	3,189	NS-7	NS-10	SP-30	2
81,0	86,0	3,189	3,386	NS-8	NS-10	SP-30	2
86,0	91,0	3,386	3,583	NS-5	NS-20	SP-30	2
91,0	96,0	3,583	3,780	NS-6	NS-20	SP-30	2
96,0	101,0	3,780	3,976	NS-7	NS-20	SP-30	2
101,0	106,0	3,976	4,173	NS-8	NS-20	SP-30	2
106,0	111,0	4,173	4,370	NS-5	NS-30	SP-30	2
111,0	116,0	4,370	4,567	NS-6	NS-30	SP-30	2
116,0	121,0	4,567	4,764	NS-7	NS-30	SP-30	2
121,0	126,0	4,764	4,961	NS-8	NS-30	SP-30	2
126,0	131,0	4,961	5,157	NS-5	NS-40	SP-30	2
131,0	136,0	5,157	5,354	NS-6	NS-40	SP-30	2

		INCH					
MIN		MIN					
136,0	141,0	5,354	5,551	NS-7	NS-40	SP-30	2
141,0	146,0	5,551	5,748	NS-8	NS-40	SP-30	2
146,0	151,0	5,748	5,945	NS-5	NS-50	SP-30	2
151,0	156,0	5,945	6,142	NS-6	NS-50	SP-30	2
156,0	161,0	6,142	6,339	NS-7	NS-50	SP-30	2
161,0	166,0	6,339	6,535	NS-8	NS-50	SP-30	2

SHAFT25

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• •		•INCH•					
MIN		MIN					
25,0	30,0	0,984	1,181	NS-1		SP-24	1
30,0	35,0	1,181	1,378	NS-2		SP-24	1
35,0	40,0	1,378	1,575	NS-3		SP-25	2
40,0	45,0	1,575	1,772	NS-4		SP-25	2
45,0	50,0	1,772	1,969	NS-5		SP-25	2
50,0	55,0	1,969	2,165	NS-6		SP-25	2
55,0	60,0	2,165	2,362	NS-7		SP-25	2
60,0	65,0	2,362	2,559	NS-8		SP-25	2
62,0	67,0	2,441	2,638	NS-5	NS-10	SP-25	2
67,0	72,0	2,638	2,835	NS-6	NS-10	SP-25	2
72,0	77,0	2,835	3,031	NS-7	NS-10	SP-25	2
77,0	82,0	3,031	3,228	NS-8	NS-10	SP-25	2
82,0	87,0	3,228	3,425	NS-5	NS-20	SP-25	2
87,0	92,0	3,425	3,622	NS-6	NS-20	SP-25	2
92,0	97,0	3,622	3,819	NS-7	NS-20	SP-25	2
97,0	102,0	3,819	4,016	NS-8	NS-20	SP-25	2

SHAFT20 ( )

• •		•INCH•					
MIN		MIN					
20,0	24,0	0,787	0,945	NS-0		SP-19	1
24,0	28,0	0,945	1,102	NS-1		SP-19	1
28,0	33,0	1,102	1,299	NS-2		SP-19	1
33,0	38,0	1,299	1,496	NS-3		SP-20	2

AUTO MINIMILL 10

Auto MiniMill 101P - ,
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MiniMill 101; „
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MiniMill 101.

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•ID OD•	•ID•				
25 - 89	25 - 77	20	100 Rpm	1,3 Hp	140 Nm
0,984 - 3,504”	0,984 - 3,031”	0,787”			105 Ft.Lbs

• •							
55 cfm	1,3 ³/min	2,32”	59	13,1”	335	25 Lbs	11,5 kg

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AUTO MINIMILL 30

Auto MiniMill 301P - ,
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MiniMill 301; „
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•ID OD•	•ID•				
12,4 - 38,0	12,4 - 24,0	20	300 Rpm	1,3 Hp	43 Nm
0,488 - 1,496”	0,488 - 0,945”	0,787”			32 Ft.Lbs

• •							
55 cfm	1,3 ㎥/min	2,32”	59	13,1”	335	25 Lbs	11,5 kg

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PANELMILL 6

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PANELMILL 65EXT	19 - 63,5	70	44,4	51,0	25,4	100 Rpm (Opc. 35, 200, 300)	140 Nm
	0,75 - 2,50”	2,75”	1,75”	2,0”	1,0”		105 Ft.Lbs

55 cfm	1,3 m³/min	1,96”	50	13,1”	300	22 Lbs	10 kg

PANELMILL 65EXT-M	50 - 63,5 + 63,5 Ž ‘•’ “	84	63,5	63,5	25,4	100 Rpm (Opc. 35, 200, 300)	140 Nm
	0,75 - 2,50” + 2,50” Ž ‘•’ “	3,3”	2,5”	2,5”	1,0”		105 Ft.Lbs

55 cfm	1,3 m³/min	1,96”	50	12,60”	320	24 Lbs	11 kg

PANELMILL 101	50 - 101	122	88,9	122	25,4	100 Rpm (Opc. 40)	140 Nm
	2 - 4”	4,8	3,5”	4,8”	1,0”		105 Ft.Lbs

55 cfm	1,3 m³/min	1,96”	50	13,77”	350	40 Lbs	18 kg

50 (1,97”)
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PanelMill 63

63 (2,48”)
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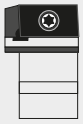
PanelMill 100



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PANELMILL

		INCH
300 PM#2	19,05	0,750
301 PM#2	20,00	0,787
304 PM#2	22,20	0,874
308 PM#2	25,40	1,000
309 PM#2	25,00	0,984
312 PM#2	28,80	1,134
313 PM#2	30,00	1,181
314 PM#2	31,70	1,248
318 PM#2	34,90	1,374
322 PM#2	38,10	1,500
326 PM#2	44,40	1,748
330 PM#2	50,80	2,000
331 PM#2	51,00	2,008
334 PM#2	57,10	2,248
338 PM#2	60,30	2,374
342 PM#2	63,50	2,500
346 PM#2	76,20	3,000

PANELMILL-E

PanelDrill E

PanelDrill. -
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Makita 3-

KRAIS
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• .. 115 /
‹ • ..... 750 W
, • ... 366 Nm (280 Ft.Lbs)
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PANELDRIL

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MiniDrill
3" (76
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2" (50).

4"
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MiniDrill
4" (101
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2"(50).

2,5"	19 - 63,5	70	44,4	51,0	50	100 Rpm (Opt. 35, 200, 300)	140 Nm
	0,75 - 2,50”	2,75”	1,75”	2,0”	2,0”		105 Ft.Lbs
• •							
55 cfm	1,3 ³⁄min	1,96”	50	13,1”	300	22 Lbs	10 kg

3,0"	19 - 76	84	63,5	63,5	50	100 Rpm (Opt. 35, 200, 300)	140 Nm
	0,75 - 3,00”	3,3”	2,5”	2,5”	2,0”		105 Ft.Lbs
• •							
55 cfm	1,3 ³⁄min	1,96”	50	12,60”	320	24 Lbs	11 kg

4,0"	50 - 101	122	88,9	122	50	100 Rpm (Optional 35 Rpm with Speed Reducer)	140 Nm
	2 - 4”	4,8	3,5”	4,8”	2,0”		105 Ft.Lbs
• •							
55 cfm	1,3 ³⁄min	1,96”	50	13,77”	350	40 Lbs	18 kg

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PANELDRILL

		INCH
300 PM#2	19,05	0,750
301 PM#2	20,00	0,787
304 PM#2	22,20	0,874
308 PM#2	25,40	1,000
309 PM#2	25,00	0,984
312 PM#2	28,80	1,134
313 PM#2	30,00	1,181
314 PM#2	31,70	1,248
318 PM#2	34,90	1,374
322 PM#2	38,10	1,500
326 PM#2	44,40	1,748
330 PM#2	50,80	2,000
331 PM#2	51,00	2,008
334 PM#2	57,10	2,248
338 PM#2	60,30	2,374
342 PM#2	63,50	2,500
346 PM#2	76,20	3,000
350 PM#2	88,90	3,500
400 PM#2	101,60	4,000

PANELDRILL-E

PanelDrill E
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PANELMILL P

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KRAIS PanelMill PF - ,
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PanelMill PF - ,
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19,05 - 76,20	35	0,1	51 - 114	35	0,1
0,75 - 3,00”	1,377”	0,003”	2,00 - 4,50”	1,377”	0,003”
	•			•	
2,2 hp	125 Rpm	300 Nm	2,2 Hp	100 Rpm	360 Nm

		INCH
308 PM#2	25,40	1,000
314 PM#2	31,70	1,248
322 PM#2	38,10	1,500
330 PM#2	50,80	2,000
342 PM#2	63,50	2,500
346 PM#2	76,20	3,000

		INCH
300 PM#2	19,05	0,750
301 PM#2	20,00	0,787
304 PM#2	22,20	0,874
309 PM#2	25,00	0,984
312 PM#2	28,80	1,134
313 PM#2	30,00	1,181
318 PM#2	34,90	1,374
326 PM#2	44,40	1,748
331 PM#2	51,00	2,008
334 PM#2	57,10	2,248
338 PM#2	60,30	2,374

PANELMILL PF-E

PanelMill PF •
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Makita
KRAIS. •
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PanelMill ’ Š:	3”	4,5”
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• :	220 Rpm	110 Rpm
‹ • :	750W	1500 W
, • :	360 Nm	420 Nm
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PMH-PF-66
66 (2,598”)
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PanelMill 3”.

PMH-PF-99
99 (3,897”)
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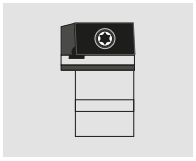
PanelMill 4,5”.



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SMARTMILL-

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SmartMill-8 • •

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•ID OD•	•ID•				
40 - 219	40 - 203,5	50	39 Rpm	3,0 hp	930 Nm
1,574 - 8,622”	1,574 - 8,012”	2”			697 Ft.Lbs

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75 cfm	2,2 ₥min	90 PSI	6,2 Bar	22 x 9,25 x 7,48”	560 x 235 x 190	46 Lbs	21 kg

: SM-7

		INCH				
MIN		MIN		SM 42 0	SM 42 1	ML 42 A
40,0	55,0	1,575	2,165	SM-42-0		
55,0	69,5	2,165	2,736		SM-42-1	
69,5	84,0	2,736	3,307		SM-42-1	ML-42-A-75
84,0	98,5	3,307	3,878		SM-42-1	ML-42-A-150
98,5	113,5	3,878	4,469		SM-42-1	ML-42-A-225
113,5	128,5	4,469	5,059		SM-42-1	ML-42-A-300
128,5	143,5	5,059	5,650		SM-42-1	ML-42-A-300 ML-42-A-75
143,5	158,5	5,650	6,240		SM-42-1	ML-42-A-300 ML-42-A-150
158,5	173,5	6,240	6,831		SM-42-1	ML-42-A-300 ML-42-A-225
173,5	188,5	6,831	7,421		SM-42-1	ML-42-A-300 ML-42-A-225 ML-42-A-75
188,5	203,5	7,421	8,012		SM-42-1	ML-42-A-300 ML-42-A-225 ML-42-A-150

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SmartMill 8 •

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SMARTMILL-8

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SmartMill-8E
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DUDE-2000-4-
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2000

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600 ƒ

PIPEMILL

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250 (9,8”)
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50 – 279		50 – 319		50 – 319		50 – 319	
1,968 – 10,984”		1,968 – 12,559”		1,968 – 12,559”		1,968 – 12,559”	
				•			
50	1,968”	1,3 hp		Š’-• •ƒ ‡ƒ —‡•‡‘—• —‡•‡ ƒŽ˜			
• •							
70 cfm	2,2 m³/min	5,7”	145	21,5”	550	52,9 Lbs	24 kg

: SM-42

		INCH				
MIN		MIN		A	B	C
50,0	65,0	1,969	2,559			
65,0	80,0	2,559	3,150	ML-42-A-75		
80,0	95,0	3,150	3,740	ML-42-A-150		
95,0	110,0	3,740	4,331	ML-42-A-225		
110,0	125,0	4,331	4,921	ML-42-A-300		
125,0	140,0	4,921	5,512	ML-42-A-375		
140,0	155,0	5,512	6,102			SML-42-C
155,0	170,0	6,102	6,693	ML-42-A-75		SML-42-C
170,0	184,5	6,693	7,264	ML-42-A-150		SML-42-C
184,5	199,0	7,264	7,835	ML-42-A-225		SML-42-C
199,0	214,0	7,835	8,425	ML-42-A-300		SML-42-C
214,0	229,0	8,425	9,016	ML-42-A-375		SML-42-C
229,0	244,5	9,016	9,626		ML-42-B	SML-42-C
244,5	259,5	9,626	10,217	ML-42-A-75	ML-42-B	SML-42-C
259,5	274,0	10,217	10,787	ML-42-A-150	ML-42-B	SML-42-C
274,0	289,0	10,787	11,378	ML-42-A-225	ML-42-B	SML-42-C
289,0	304,0	11,378	11,969	ML-42-A-300	ML-42-B	SML-42-C
304,0	319,0	11,969	12,559	ML-42-A-375	ML-42-B	SML-42-C

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, , „	‹ 15	15 RPM	2544 Nm	1908 Ft.Lbs
, , „	‹ 20	20 RPM	1883 Nm	1415 Ft.Lbs
, , „	‹ 28	28 RPM	1290 Nm	969 Ft.Lbs
, , „	‹ 37	37 RPM	971 Nm	730 Ft.Lbs

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290 (11,4”)
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Mini & HyperMill.
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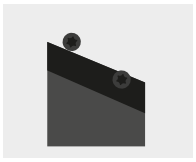

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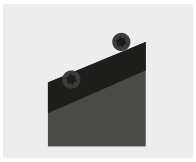

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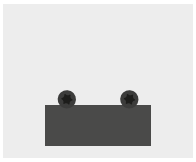

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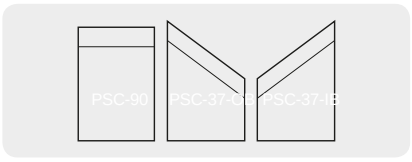

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PIPEMILL-E ™

PipeMill-E - PipeMill.
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DUDE-2000-4-SPEED
- • : ..... 120-210-380-650 RPM
‹ • : .....2000 W
, • (1-): ....240 Nm (180 Ft.Lbs)
• : ..... 40 (1,6”)
- • : ..... 10-17-30-50 rpm
‹ •
(1-): ..... 3096 Nm (2290 Ft.Lbs)

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SAV-500
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SCHEDULE 12

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72 - 406	70 - 400	50	3,0 Hp	Š'-• •ƒ ‡ƒ —‡•‡'—• —‡•‡ ƒŽ˜	
2,800 - 16,000”	2,755 - 15,700”	2”			

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70 cfm	2,2 ³⁄min	90 PSI	6,2 Bar	25 x 13 x 12”	640 x 330 x 300	75 Lbs	35 kg

: ML-42

		INCH				
MIN		MIN		A	B	C
70	85	2,756	3,346			
85	100	3,346	3,937	ML-42-A-75		
100	115	3,937	4,528	ML-42-A-150		
115	130	4,528	5,118	ML-42-A-225		
130	145	5,118	5,709	ML-42-A-300		
145	160	5,709	6,299	ML-42-A-375		
160	175	6,299	6,890			ML-42-C
175	190	6,890	7,480	ML-42-A-75		ML-42-C
190	205	7,480	8,071	ML-42-A-150		ML-42-C
205	220	8,071	8,661	ML-42-A-225		ML-42-C
220	235	8,661	9,252	ML-42-A-300		ML-42-C
235	250	9,252	9,843	ML-42-A-375		ML-42-C
250	265	9,843	10,433		ML-42-B	ML-42-C
265	280	10,433	11,024	ML-42-A-75	ML-42-B	ML-42-C
280	295	11,024	11,614	ML-42-A-150	ML-42-B	ML-42-C
295	310	11,614	12,205	ML-42-A-225	ML-42-B	ML-42-C
310	325	12,205	12,795	ML-42-A-300	ML-42-B	ML-42-C
325	340	12,795	13,386	ML-42-A-375	ML-42-B	ML-42-C
340	355	13,386	13,976	ML-42-A-300 ML-42-A-150	ML-42-B	ML-42-C
355	370	13,976	14,567	ML-42-A-300 ML-42-A-225	ML-42-B	ML-42-C
370	385	14,567	15,157	ML-42-A-375 ML-42-A-225	ML-42-B	ML-42-C
385	400	15,157	15,748	ML-42-A-375 ML-42-A-300	ML-42-B	ML-42-C

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, , „	‹ 11	11 RPM	3850 Nm	2840 Ft.Lbs
, , „	‹ 15	15 RPM	2615 Nm	1960 Ft.Lbs
, , „	‹ 21	21 RPM	1770 Nm	1327 Ft.Lbs

Ž (2CDI F-45-90	„ (2CDI) IB-45-37 IB-45-10	ƒ • ” (2CDI) OB-45-45 OB-45-37 OB-45-30 OB-45-10	- „ (2CDJ-Rxx) JP-45-45 JP-45-37 JP-45-30	- • ” (CB-45) CB-10/37 ( )

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105 - 508	100 - 460	60	10 Rpm	3,5 Hp	7500 Nm
4,0 - 20,0”	3,937 - 18,110”	2,4”			5530 Ft.Lbs

• •		•					
85 cfm	2,8 ‰min	90 PSI	6,2 Bar	31 x 17 x 16”	800 x 425 x 400	185 Lbs	84 kg

: HL-42

		INCH				
MIN		MIN		A	B	C
100	120	3,937	4,724			
120	140	4,724	5,512	HL-42-A-100		
140	160	5,512	6,299	HL-42-A-200		
160	180	6,299	7,087	HL-42-A-300		
180	200	7,087	7,874	HL-42-A-400		
200	220	7,874	8,661	HL-42-A-500		
220	240	8,661	9,449		HL-42-B	
240	260	9,449	10,236	HL-42-A-100	HL-42-B	
260	280	10,236	11,024	HL-42-A-200	HL-42-B	
280	300	11,024	11,811	HL-42-A-300	HL-42-B	
300	320	11,811	12,598	HL-42-A-400	HL-42-B	
320	340	12,598	13,386	HL-42-A-500	HL-42-B	
340	360	13,386	14,173			HL-42-C
360	380	14,173	14,961	HL-42-A-100		HL-42-C
380	400	14,961	15,748	HL-42-A-200		HL-42-C
400	420	15,748	16,535	HL-42-A-300		HL-42-C
420	440	16,535	17,323	HL-42-A-400		HL-42-C
440	460	17,323	18,110	HL-42-A-500		HL-42-C

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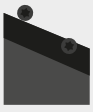

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180 - 609	175 - 600	60	3,5 hp	5 Rpm	12500 Nm
7,0 - 24,0”	6,889 - 23,6”	2,4”			9219 Ft.lbs

• •		•					
85 cfm	2,8 m³/min	90 PSI	6,2 Bar	38 x 22 x 22”	950 x 550 x 500	495 Lbs	225 kg

: PL-42

		INCH				
MIN		MIN		A	B	C
175,0	200,0	6,890	7,874			
200,0	225,0	7,874	8,858	PL-42-A-125		
225,0	250,0	8,858	9,843	PL-42-A-250		
250,0	275,0	9,843	10,827	PL-42-A-375		
275,0	300,0	10,827	11,811	PL-42-A-500		
300,0	325,0	11,811	12,795	PL-42-A-500 PL-42-A-125		
325,0	350,0	12,795	13,780	PL-42-A-500 PL-42-A-250		
350,0	375,0	13,780	14,764		PL-42-B	
375,0	400,0	14,764	15,748	PL-42-A-125	PL-42-B	
400,0	425,0	15,748	16,732	PL-42-A-250	PL-42-B	
425,0	450,0	16,732	17,717	PL-42-A-375	PL-42-B	
450,0	475,0	17,717	18,701	PL-42-A-500	PL-42-B	
475,0	500,0	18,701	19,685			PL-42-C
500,0	525,0	19,685	20,669	PL-42-A-125		PL-42-C
525,0	550,0	20,669	21,654	PL-42-A-250		PL-42-C
550,0	575,0	21,654	22,638	PL-42-A-375		PL-42-C
575,0	600,0	22,638	23,622	PL-42-A-500		PL-42-C

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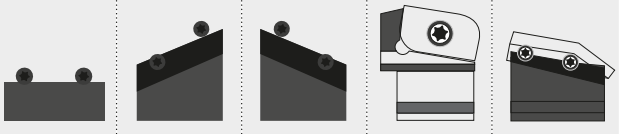

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180 - 1016	175 - 972	60	3,5 hp	5 Rpm	12500 Nm
7,0 - 40,0”	6,9 - 38,3”	2,4”			9219 Ft.lbs

• •		•					
85 cfm	2,8 ₥min	90 PSI	6,2 Bar	38 x 22 x 22”	950 x 550 x 500	495 Lbs	225 kg

: PL-42

		INCH						
MIN		MIN		A	B	C	D	E
175	200	6,9	7,9					
200	225	7,9	8,9	PL-42-A-125				
225	250	8,9	9,8	PL-42-A-250				
250	275	9,8	10,8	PL-42-A-375				
275	300	10,8	11,8	PL-42-A-500				
300	325	11,8	12,8	PL-42-A-500 PL-42-A-125				
325	350	12,8	13,8	PL-42-A-500 PL-42-A-250				
350	375	13,8	14,8		PL-42-B			
375	400	14,8	15,7	PL-42-A-125	PL-42-B			
400	425	15,7	16,7	PL-42-A-250	PL-42-B			
425	450	16,7	17,7	PL-42-A-375	PL-42-B			
450	475	17,7	18,7	PL-42-A-500	PL-42-B			
475	500	18,7	19,7			PL-42-C		
500	525	19,7	20,7	PL-42-A-125		PL-42-C		
525	550	20,7	21,7	PL-42-A-250		PL-42-C		
550	575	21,7	22,6	PL-42-A-375		PL-42-C		
575	600	22,6	23,6	PL-42-A-500		PL-42-C		
593	622	23,3	24,5	PL-42-A-500 PL-42-A-125		PL-42-C		
621	647	24,4	25,5	PL-42-A-500 PL-42-A-250		PL-42-C		

		INCH						
MIN		MIN		A	B	C	D	E
646	671	25,4	26,4	PL-42-A-500 PL-42-A-375		PL-42-C		
667	693	26,3	27,3			PL-42-C	PL-42-D	
692	716	27,2	28,2	PL-42-A-125		PL-42-C	PL-42-D	
715	739	28,1	29,1	PL-42-A-250		PL-42-C	PL-42-D	
738	762	29,1	30,0	PL-42-A-375		PL-42-C	PL-42-D	
761	786	30,0	30,9	PL-42-A-500		PL-42-C	PL-42-D	
787	811	31,0	31,9			PL-42-C		PL-42-E
810	834	31,9	32,8	PL-42-A-125		PL-42-C		PL-42-E
833	856	32,8	33,7	PL-42-A-250		PL-42-C		PL-42-E
856	879	33,7	34,6	PL-42-A-375		PL-42-C		PL-42-E
878	903	34,6	35,6	PL-42-A-500		PL-42-C		PL-42-E
902	925	35,5	36,4	PL-42-A-500 PL-42-A-125		PL-42-C		PL-42-E
924	949	36,4	37,4	PL-42-A-500 PL-42-A-250		PL-42-C		PL-42-E
948	972	37,3	38,3	PL-42-A-500 PL-42-A-375				PL-42-E

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12,5– 51,0	…	100 Rpm	1,3 Hp	140 Nm
0,492 – 2,000”	‹			105 Ft.Lbs

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55 cfm	1,3 m3/min	2,32”	59	13,1”	335	17,5 Lbs	8 kg

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12,5– 51,0	… ‹	20	300 Rpm	1,3 Hp	43 Nm
0,492 – 2,000”		0,787”			32 Ft.Lbs

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55 cfm	1,3 ₩min	2,32”	59	13,1”	335	13,2Lbs	6 kg

FINFAN

FINFAN	.	•O.D.•			•			
	INCH		BWG				MIN	
601-FinFan-1-12”	1,000	25,40	12-23	CI	3	1-1/8	207 #36	213 #36
603-FinFan-1-1/8-12”	1,125	28,58	12-23	CI	3	1-1/4	211 #36	217 #36
605-FinFan-1-1/4-12”	1,250	31,75	11-23	CI	3	1-3/8	103 #36	107 #36
607-FinFan-1-1/2-12”	1,500	38,10	11-23	CI	3	1-5/8	107 #36	111 #36
609-FinFan-1-3/4-12”	1,750	44,45	9-23	CI	3	1-7/8	111 #36	115 #36
611-FinFan-2-12”	2,000	50,80	9-23	CI	3	2-1/8	115 #36	119 #36

		INCH
601-FinFan-xx-6	152,4	6”
601-FinFan-xx-8	203,2	8”
601-FinFan-xx-10	254,0	10”
601-FinFan-xx-12	305,0	12”
601-FinFan-xx-14	355,6	14”
601-FinFan-xx-16	406,4	16”

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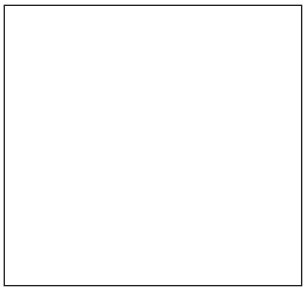
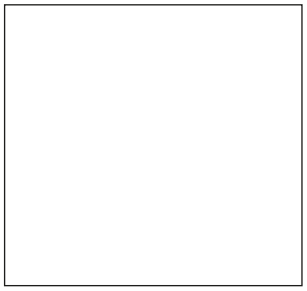
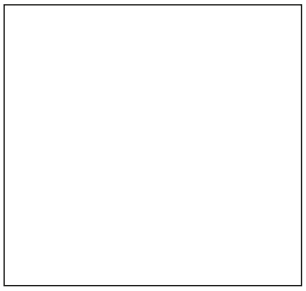

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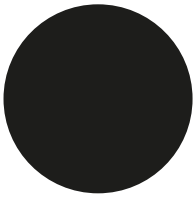

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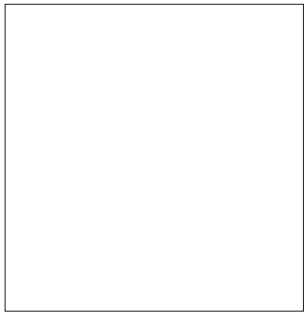
12 TPI	Suit to thread of the plug	20	300 Rpm	1,3 Hp	43 Nm
1,125 - 2,125”		0,787”			32 Ft.Lbs

• •							
55 cfm	1,3 m³/min	2,32”	59	13,1”	335	13,2Lbs	6 kg



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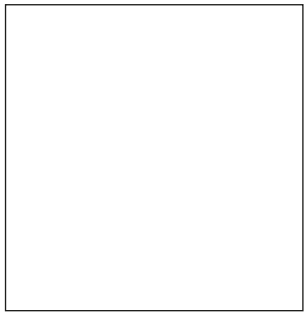

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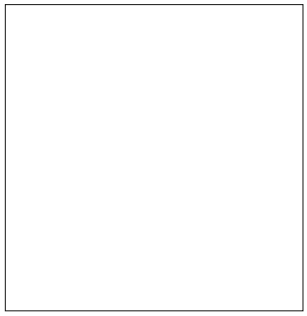

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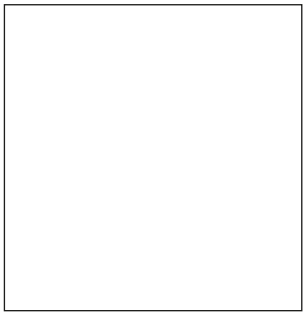

‹ • MiniMill 300 GFF.

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	INCH		TPI	MIN INCH	INCH	MIN				•		INCH		TPI	
FFGSMH-1125	1,125	28,58	12	0,940	1,496	24,00	38,00	CI 5x5	4	701	#36-1-1/8-GFF	1,125	28,575	12	PGFF-1125
FFGSMH-1250	1,250	31,75	12	1,063	1,614	27,00	41,00	CI 5x5	4	703	#36-1-1/4-GFF	1,250	31,750	12	PGFF-1250
FFGSMH-1350	1,375	34,93	12	1,220	1,772	31,00	45,00	CI 5x5	4	705	#36-1-3/8-GFF	1,375	34,925	12	PGFF-1350
FFGSMH-1500	1,500	38,10	12	1,339	1,890	34,00	48,00	CI 5x5	4	707	#36-1-1/2-GFF	1,500	38,100	12	PGFF-1500
FFGSMH-1625	1,625	41,27	12	1,457	2,008	37,00	51,00	CI 5x5	4	709	#36-1-5/8-GFF	1,625	41,275	12	PGFF-1625
FFGSMH-1750	1,750	44,45	12	1,590	2,140	40,40	54,40	CI 5x5	4	711	#36-1-3/4-GFF	1,750	44,450	12	PGFF-1750
FFGSMH-1875	1,875	47,62	12	1,720	2,270	43,60	57,60	CI 5x5	4	713	#36-1-7/8-GFF	1,875	47,625	12	PGFF-1875

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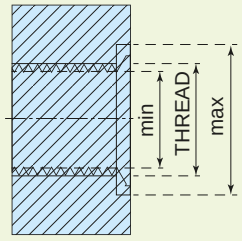

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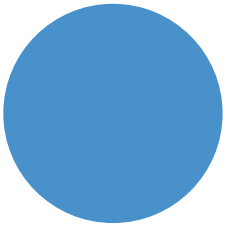

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SHAFT25

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•ID OD•	•ID•	•	•		
25 - 127	25 - 122	100	55 Rpm	1,3 Hp	140 Nm
0,984 - 5,000”	0,984 - 4,803”	4”			105 Ft.Lbs

• •							
75 cfm	2,2 m³/min	2,59”	66	14,5”	370	19 Lbs	9 kg

: SHAFT25

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MIN		MIN					
25	30	0,984	1,181	NS-1	-	SP-24	1
30	35	1,181	1,378	NS-2	-	SP-24	1
35	40	1,378	1,575	NS-3	-	SP-25	2
40	45	1,575	1,772	NS-4	-	SP-25	2
45	50	1,772	1,969	NS-5	-	SP-25	2
50	55	1,969	2,165	NS-6	-	SP-25	2
55	60	2,165	2,362	NS-7	-	SP-25	2
60	65	2,362	2,559	NS-8	-	SP-25	2
62	67	2,441	2,638	NS-5	NS-10	SP-25	2
67	72	2,638	2,835	NS-6	NS-10	SP-25	2
72	77	2,835	3,031	NS-7	NS-10	SP-25	2

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MIN		MIN					
77	82	3,031	3,228	NS-8	NS-10	SP-25	2
82	87	3,228	3,425	NS-5	NS-20	SP-25	2
87	92	3,425	3,622	NS-6	NS-20	SP-25	2
92	97	3,622	3,819	NS-7	NS-20	SP-25	2
97	102	3,819	4,016	NS-8	NS-20	SP-25	2
102	107	4,016	4,213	NS-5	NS-30	SP-25	2
107	112	4,213	4,409	NS-6	NS-30	SP-25	2
112	117	4,409	4,606	NS-7	NS-30	SP-25	2
117	122	4,606	4,803	NS-8	NS-30	SP-25	2

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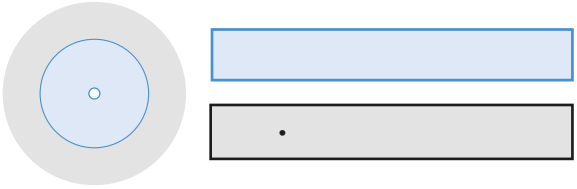

•	•ID•	.	.	
30 – 350	25,4 - 254,0	10	55	457,2
1,750 – 14,000”	1 - 10”	0,395”	2,165”	18”

• ‹ Œ	6,5”	165	12,8”	325	19,4 Lbs	8,8 kg

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MFMH-7-L MFMH-7-R
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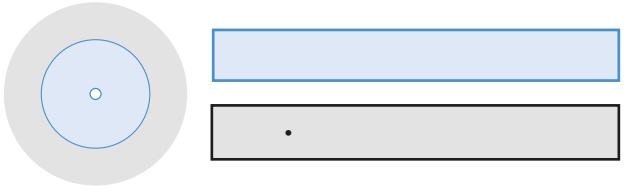

•	•ID•	.	.	
51 – 650	51 - 550	10	55	757
2,01 – 25,60”	2,01 - 21,65”	0,395”	2,165”	30”

• ‹ Œ	6,5”	165	18,7”	475	19,4 Lbs	8,8 kg

MFM

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MFMH-7-L MFMH-7-R

CI7

(MHS-2,7)

CI7	A	B
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1,45 – 10”	2 – 10™™ OD	1,0 – 5,9”	0,5™™	0,019™™	1,3 Hp
37 – 254	51 – 254	26 – 150	13	0,5	

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55 cfm	1,3 m³/min	23 Lbs	10,43 kg	19,30"	490	16,33"	415	12,20"	310

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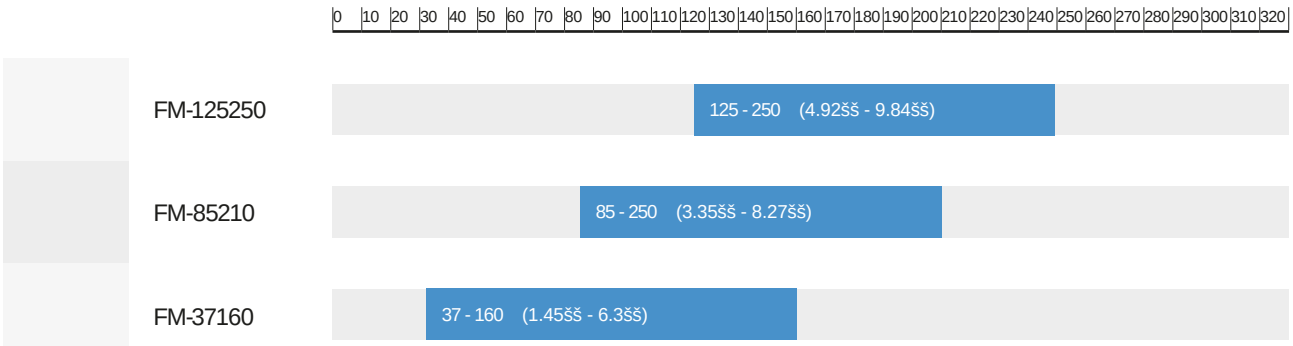

FM-E

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• ... 115 RPM
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